DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

FINAL SUMMARY REPORT
DATA ITEM A009
MONITORING AND PUMPING TEST PROGRAM
DETROIT ARSENAL
WARREN, MICHIGAN

Contract No. DAAA15-91-D-0008
Task Order No. 3

Prepared for:

UNITED STATES ARMY
ENVIRONMENTAL CENTER
Aberdeen Proving Ground, Maryland

Prepared by:

ABB ENVIRONMENTAL SERVICES, INC.
39255 Country Club Drive, Suite B-25
Farmington Hills, Michigan 48331

PROJECT NUMBER 7027-01

SEPTEMBER 1993

"Printed on Recycled Paper"

20011102 144

AEC Form 45, Feb 93 replaces THAMA Form 45 which is obselete

52944

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave Blank)*

2. REPORT DATE
September, 1993

3. REPORT TYPE AND DATES COVERED
Final

4. TITLE AND SUBTITLE
Final Summary Report - Monitoring and Pumping Test Program, Detroit Arsenal

5. FUNDING NUMBERS
C-
DAAA15-91-D-0008
TA-Order No. 3

6. AUTHOR(S)
Greta Reade, Larry Dearborn

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
ABB ENVIRONMENTAL SERVICES INC.
39255 Country Club Drive, Suite B-25
Farmington Hills, Michigan 48331

8. PERFORMING ORGANIZATION REPORT NUMBER
7027-01

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Tank-Automotive Research & Development Command
ATTN: AMSTA-XEM
6501 E. 11 Mile Road
Warren, MI 48397-5000

USAEC
CETHA-IR-A
Building 4480
Aberdeen Proving Grounds, MD
21010-5401

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
SFIM-AEC-IR-CR 93122

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*
ABB Environmental Services, Inc., has prepared a report for the groundwater monitoring and pumping test program conducted at the Detroit Arsenal in Warren, Michigan. This document was prepared under contract to the U.S. Army Environmental Center Installation Restoration Division. The report documents the activities and results of the groundwater monitoring and pumping test program. The program included a well stepped-drawdown test and well pumping tests, along with the collection and analysis of various groundwater samples.

14. SUBJECT TERMS
Hydrogeologic site characterization; groundwater sampling and analysis

15. NUMBER OF PAGES
348

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

FINAL SUMMARY REPORT
DATA ITEM A009
MONITORING AND PUMPING TEST PROGRAM
DETROIT ARSENAL
WARREN, MICHIGAN

Contract No. DAAA15-91-D-0008
Task Order No. 3

Prepared for:

UNITED STATES ARMY
ENVIRONMENTAL CENTER
Aberdeen Proving Ground, Maryland

Prepared by:

ABB ENVIRONMENTAL SERVICES, INC.
39255 Country Club Drive, Suite B-25
Farmington Hills, Michigan 48331

PROJECT NUMBER 7027-01

SEPTEMBER 1993

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

This document is the Draft Report for the Monitoring and Pumping Test Program conducted at the Detroit Arsenal in Warren, Michigan. This report was prepared by ABB Environmental Services, Inc., (ABB-ES) to fulfill requirements of Task Order 3 of Contract DAAA15-91-D-0008 between ABB-ES and the U.S. Army Environmental Center (USAEC).[1]

Task Order 3 was originally issued on September 26, 1991; the objectives of the task order were to collect the information necessary to estimate the groundwater flow direction, calculate the transmissivity of the glacial till, and determine groundwater quality. The primary work elements of the original task order were to write a Sampling Plan, perform a stepped-drawdown test at MW003 and 72-hour constant-discharge tests at MW003 and MW017, collect and analyze two rounds of groundwater samples, and submit a final report discussing results of the investigation. Task Order 3 was modified on September 10, 1992, to add the installation of four piezometers and on July 26, 1993, to add surveying of the piezometers and to adjust the budget and schedule which were affected by unanticipated field problems.

[1] USAEC was formerly known as USATHAMA (U.S. Army Toxic and Hazardous Materials Agency). USAEC is used throughout this report; however, some items in the appendices refer to USATHAMA.

2.0 SITE HISTORY

The Detroit Arsenal is located near the intersection of I-696 and Van Dyke Avenue in Warren, Michigan (Figure 2-1). The arsenal was established in 1940 as a tank production center and experimental product facility for armed services automotive equipment.

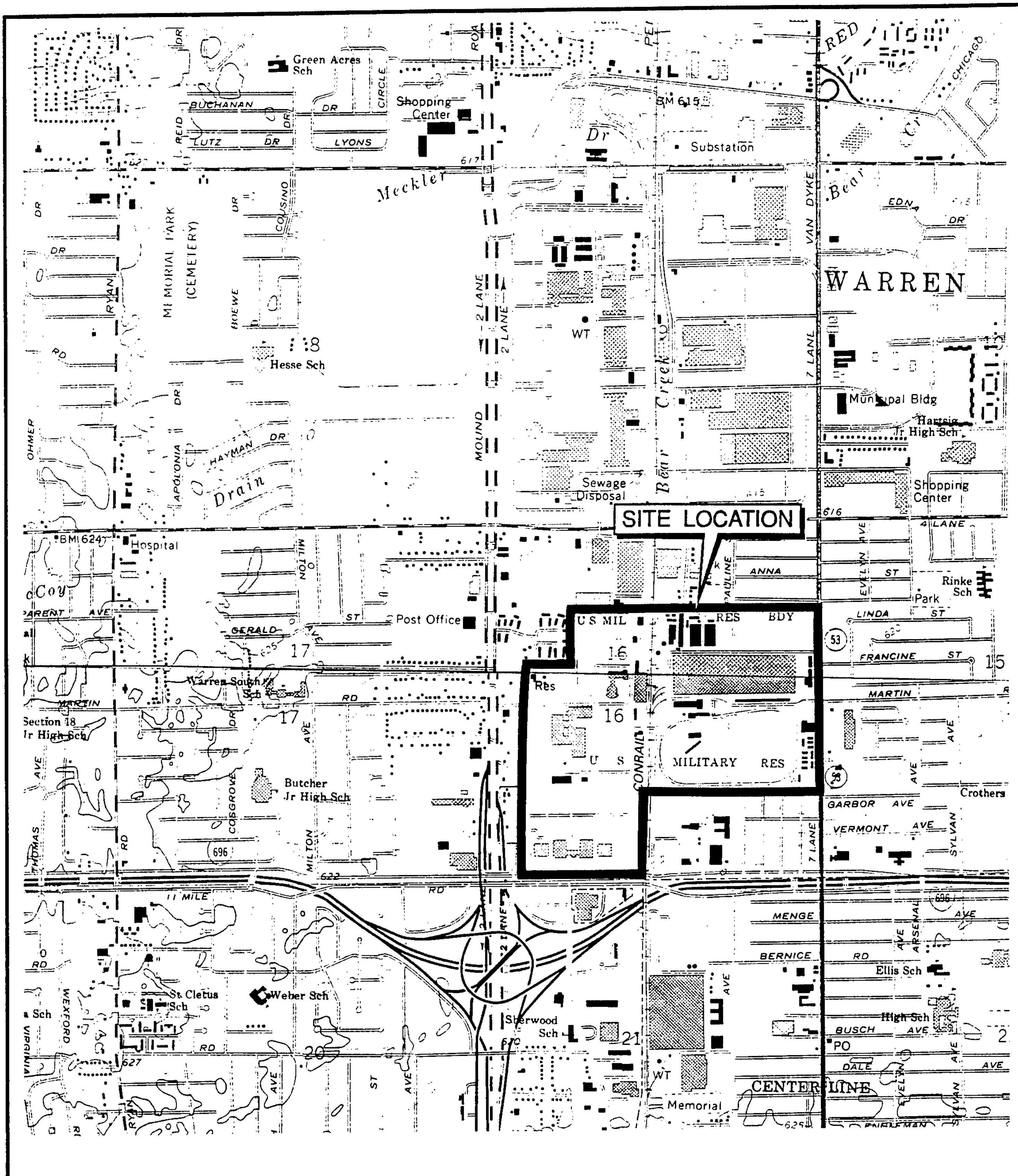
A site map is provided as Figure 2-2. The western portion of the arsenal, that area west of the railroad track bisecting the facility, is operated by the government and used for administration and research. The eastern portion of the facility, east of the railroad tracks, is operated by General Dynamics and was previously operated by Chrysler Corporation. The eastern portion was primarily used for industrial activities including tank assembly, machining, and power generation. The tank assembly operations have been discontinued.

2.1 ENVIRONMENTAL COMPLIANCE HISTORY

In 1980, USAEC conducted an Installation Assessment of the arsenal. Based upon the assessment, the Tank Test Track Area, which had been used in previous years as a landfill, and the Underground Waste Oil/Solvent Storage Tank Area were identified as potential environmental concerns. The locations of these areas are shown on Figure 2-2.

Investigations conducted by the U.S. Army Corps of Engineers in 1984 indicated that soils in the vicinity of the Underground Waste Oil/Solvent Storage Tank Area were contaminated with oils. In 1985, an environmental assessment was conducted of this area and another area by Envirodyne Engineers, Inc., (EEI) for the USAEC. The underground tanks and surrounding soil in the Underground Waste Oil/Solvent Storage Tank Area were removed by the Louisville District Corps of Engineers in 1988.

A quarterly monitoring program was conducted at the arsenal for the USAEC by Dames & Moore in 1990 to evaluate the potential for contaminants to migrate away from the site.



SCALE

0 1000 2000 3000 Ft.

Taken from the Highland Park and Warren, Michigan 7.5 Series, U.S.G.S Topographic Quadrangle Map

FIGURE 2-1
SITE LOCATION
DETROIT ARSENAL

ABB Environmental Services, Inc.

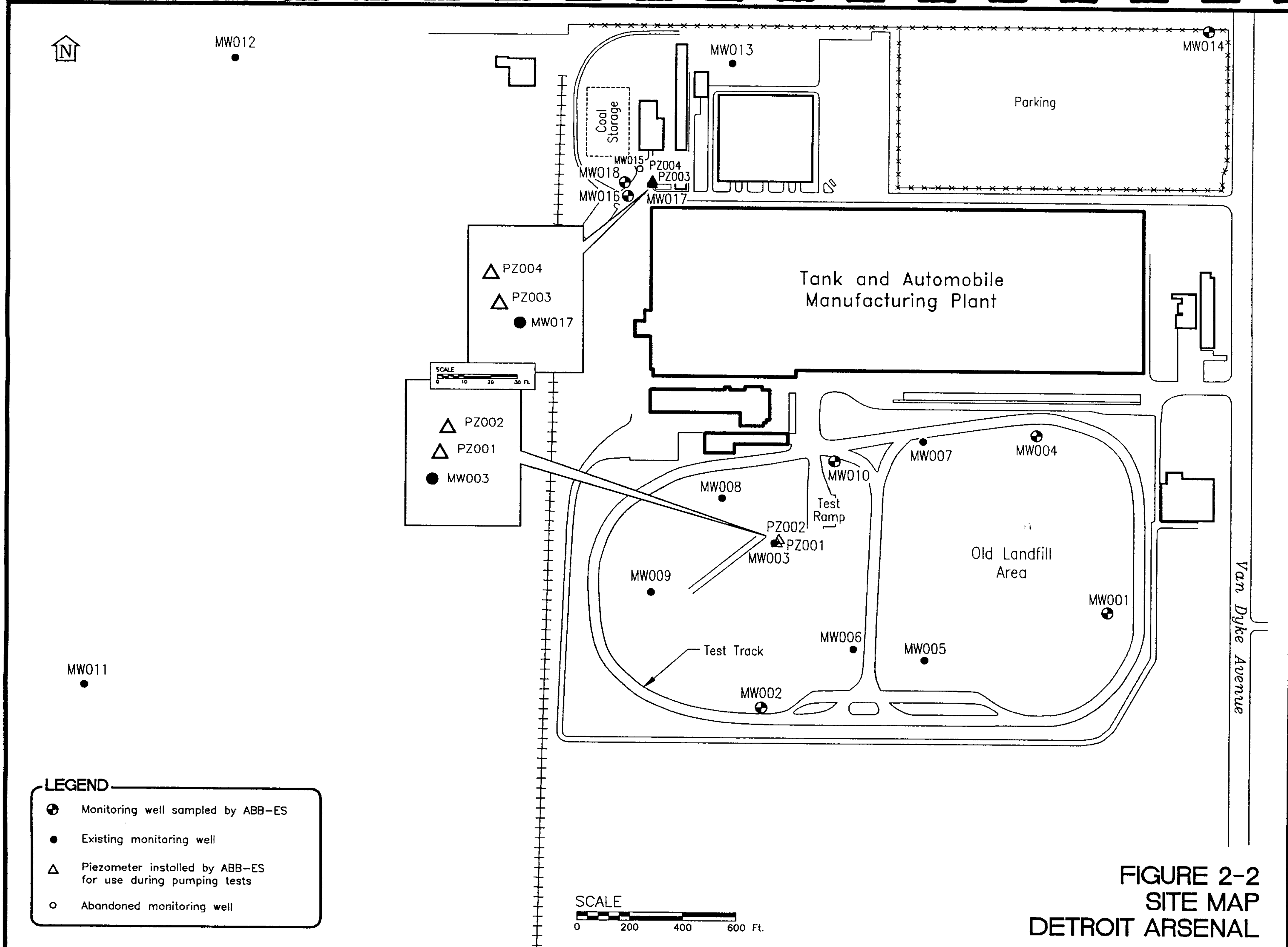


FIGURE 2-2
SITE MAP
DETROIT ARSENAL

ABB Environmental Services, Inc.

A9308011/7027-01/AC184 | Drawn: DGH | Rev: 09/27/93 | By: DGH

2.2 RESULTS OF PREVIOUS INVESTIGATIONS

During previous investigations at the Detroit Arsenal, eighteen soil borings were drilled to an average depth of 32 feet below ground surface for the installation of monitoring wells (EEI, 1985). (MW015 was abandoned and destroyed in 1991 due to construction activities.) Based upon these borings, the soil stratigraphy appears to be very similar across the facility. Fill material mixed with either brown or grey brown silty clay, or clay was encountered to an average depth of about 6 feet. A grey brown silty clay (with traces of sand) or brown sandy clay, was observed below this depth. This layer was generally encountered to a depth of approximately 15 feet. At some locations, thin fine sand or clayey fine sand seams were noted from 7 feet to 9 feet below ground surface. The natural soils from 6 feet to 15 feet were interpreted as being deposited in a glacial lacustrine setting, and were therefore termed the upper glacial lacustrine deposits.

Grey silty clay with traces of sand and gravel was encountered below the upper glacial lacustrine deposits to the maximum depth of each boring (averaging 32 feet). Occasionally, a sand or clayey sand lens was noted in this layer. These soils were termed the lower glacial lacustrine deposits. Boring logs for two production wells at the facility indicate that sands are present within the lower glacial lacustrine deposits at approximately 100 feet below ground surface. Regionally, glacial deposits extend to depths sometimes greater than 200 feet and overlie sedimentary bedrock.

During drilling, shallow groundwater was encountered at a depth of approximately 10 feet within the upper glacial lacustrine deposits. Contoured water-level measurements indicated that the shallow groundwater flow direction is north-northeasterly.

Bail-down slug tests performed in 16 of the wells indicated an approximate horizontal hydraulic conductivity of $1x10^{-5}$ centimeters per second (cm/sec). A vertical permeability of $2.7x10^{-7}$ cm/sec was calculated based upon laboratory testing. A linear groundwater seepage velocity of $4.5x10^{-4}$ feet per day (0.16 feet per year) was calculated by ABB-ES using the above hydraulic conductivity and an assumed average effective porosity of 0.01.

The lower glacial lacustrine deposits appear to separate the shallow groundwater from the water-bearing sand deposits present at approximately 100 feet below ground surface. Production wells at

the facility withdraw water from the deep sand deposits. Groundwater is also present within the bedrock, but the water has very poor quality and is not used for water supplies.

The topography of the site is relatively flat with the total relief variation being less than 10 feet. Bear Creek, located adjacent to the western boundary of the arsenal, is the predominant topographic feature.

Natural drainage flows westward towards Bear Creek, but surface water drainage at the arsenal has been altered by an extensive storm sewer system. As a result, surface water runoff from the arsenal flows untreated through the city of Warren's storm sewer system into Bear Creek (north of 13 Mile and Van Dyke).

An environmental assessment of the Tank Test Track and Underground Waste Oil/Solvent Storage Tank areas was conducted by Envirodyne Engineers, Inc., (EEI) for USAEC in 1985. Oil and grease, solvents (including trichloroethylene, 1,1-dichloroethane, 1,1,1-trichloroethane, 1,2-trans-dichloroethylene, 1,2-dichloropropane, and 1,1,2-trichloro-1,2-2 trifluoroethane), metals (including chromium, iron, manganese and lead), and sulfate were detected in groundwater samples collected from monitoring wells. The presence of iron, manganese, and sulfate in similar concentrations in both upgradient and downgradient wells indicated that they were not related to activities at the arsenal (EEI, 1985). The potential for contaminants to migrate from the arsenal via surface water drainage through the sewer system was also investigated. Oil and grease, chromium, iron, manganese, hydrocarbons, and trace amounts of solvents were reported to be present in the water in the sewer system (EEI, 1985).

The potential for migration of contaminants off site was considered low because calculated groundwater movement is very slow due to the low hydraulic conductivity of the soil and a regionally low hydraulic gradient. Previous investigations also indicated that the water supply aquifer in the area is well protected by underlying clays (EEI, 1985). Quarterly monitoring of selected monitoring wells and sewers was conducted for one year, and the data indicated that contaminants were not migrating off the site (Dames & Moore, 1990).

3.0 AQUIFER HYDRAULIC TESTING

Aquifer pumping tests were planned to provide the information necessary to quantify the primary hydraulic parameters: hydraulic conductivity (K_h), transmissivity (T), and specific yield/storativity (S). Shallow groundwater at the arsenal was believed to be unconfined; thus the storage coefficient and specific yield would be essentially equal. This information, in turn, would be used to refine existing estimates of groundwater seepage velocities. Existing wells MW003 and MW017 were selected by the USAEC as pumping wells.

Two types of pumping tests were conducted: a short stepped-discharge test at MW003 and longer constant-discharge tests at both MW003 and MW017. The stepped-discharge test was conducted and evaluated first, and the results were used as input into the final design of the longer tests. The details of the stepped-discharge test and the data analysis for that test were reported in a letter to the USAEC on December 6, 1991 (Appendix A).

A description of the constant-discharge tests as conducted is contained in a February 5, 1993, letter to the USAEC (Appendix B) and is not repeated in detail here. The basic principles used to conduct these pumping tests are described in Appendix B of the Sampling and Pumping Test Plan. The stepped-discharge test is summarized below in Section 3.1 while the constant discharge tests are discussed in Section 3.2. An interpretation and discussion of the constant-discharge test results is presented in Section 3.3. ABB-ES' interpretation of groundwater flow patterns and velocity calculations are presented in Section 3.4.

3.1 STEPPED-DISCHARGE TEST

As required by the USAEC task order, a stepped-discharge test was performed at MW003 on November 26, 1992, to provide data for determining an optimal pumping rate for the constant-discharge tests. The selection of the pumping rate for tests run in very low permeability media is critical to achieve the maximum possible hydraulic stress while avoiding excessive dewatering of the pumping well and premature shutdown of the test.

The analysis of the stepped-discharge test resulted in a T value of 1.2 $feet^2$/day and an aquifer hydraulic conductivity (K_h) of 0.062 feet/day or $2x10^{-5}$ cm/sec. This value is twice the geometric mean ($1x10^{-5}$ cm/sec) of the slug tests performed in 1984. Both the slug tests and the stepped-discharge test provided limited information because they were short-term, single-well tests.

Using the results of the stepped-discharge test, a recommended pumping rate for the constant-discharge tests was derived by modeling drawdown versus radial distance for various durations and pumping rates. The recommendation resulting from the analysis of the stepped-discharge test was to install observation piezometers at 10 and 20 feet away from MW003 and MW017 and then to pump at 0.08 gpm.

3.2 CONSTANT-DISCHARGE TESTS

Based on the results of the stepped-discharge test analysis, four new piezometers were installed as follows: PZ001 is 10 feet from MW003, PZ002 is 20 feet from MW003, PZ003 is 10 feet from MW017, and PZ004 is 20 feet from MW017. Each of the piezometers has 20 feet of screen set at approximately the same elevation as the screen of the adjacent test well. Further details are contained in a letter to the USAEC dated February 4, 1993 (Appendix C). These piezometers were installed to increase the chance that fully developed drawdown curves would be obtained within the 72-hour pumping test period. Figure 3-1 shows the layout of observation wells and piezometers at each constant-discharge test location.

Both constant-discharge tests were implemented at a pumping rate of 0.08 gpm. The test at MW003 was terminated on December 21, 1992, after approximately 48 hours of pumping because the field drawdown data plots indicated that stabilized drawdown levels had been reached after approximately 24 hours. The MW017 test, begun on January 9, 1993, had to be stopped prematurely after 5 hours of pumping because drawdown in the pumped well had become excessive at 75 percent of the standing water column. At this point, it became impossible to maintain a steady discharge rate and it was obvious that the well would not yield enough water to produce measurable drawdown at PZ003. Measurable drawdown at PZ003 was necessary to allow an analysis for all the parameters of interest.

To define short-term fluctuations such as those caused by barometric pressure changes and recharge events, water levels were continuously recorded during each test in a background well located beyond the expected influence range of the pumping. A barometric probe was also used to provide the data necessary for computing barometric efficiencies in the event that drawdowns and recoveries were significantly affected by changes in atmospheric pressure.

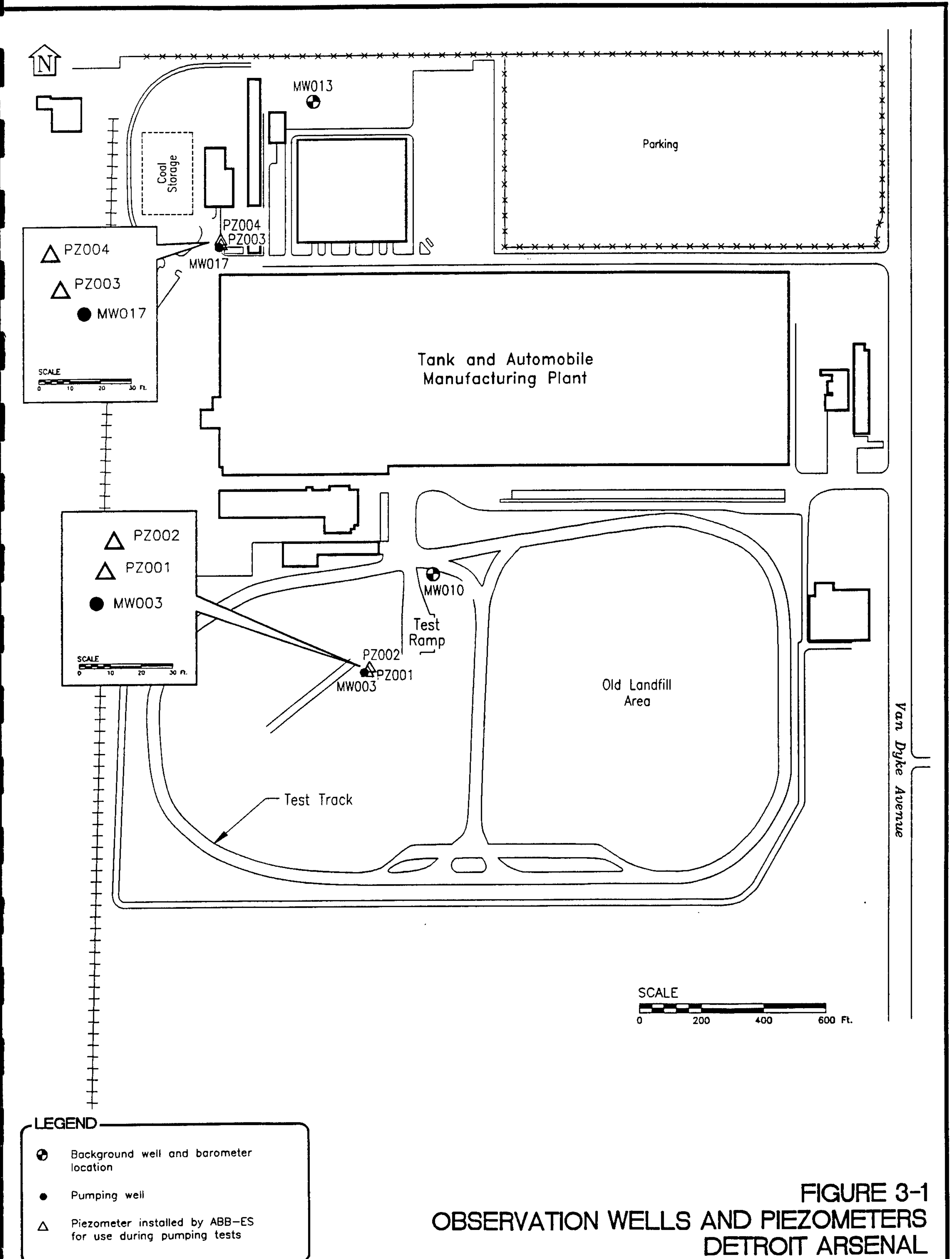


FIGURE 3-1
OBSERVATION WELLS AND PIEZOMETERS
DETROIT ARSENAL

3.2.1 Analysis of the Constant-Discharge Test at MW003

Because variations in pumping rates at MW003 affected the drawdown curves (Appendix D) but not the recovery curves, the recovery data were analyzed instead of drawdown data.

Recovery data plots for PZ001 and PZ002 (Appendix E), representing approximately one day of monitoring, were analyzed using: (1) the Theis recovery type-curve method, (2) the Hantush-Jacob vertical leakage type-curve method, and (3) the straight-line residual drawdown method.[2] Subjective fitting of the type curve or a straight line through the data points allowed the determination of T and S, using standard equations. Additionally, a residual drawdown analysis was applied to the recovery data of the pumped well (MW003). Semilog and log-log plots of adjusted recovery versus time for both piezometers were generated for straight-line and type-curve analyses, respectively. The calculations of T and S are also presented in Appendix E. Semilogarithmic plots of recovery data were not used in the calculations.

Table 3-1 summarizes the calculated values of T and S; it also reports K_h values calculated from T values using an aquifer thickness of 23 feet. The table shows a range of T from 5.3 to 18.8 ft^2/day, which corresponds to a range of K_h from $8x10^{-5}$ to $3x10^{-4}$ cm/sec. S values range from $1x10^{-4}$ to $5x10^{-2}$.

3.2.2 Analysis of the Constant-Discharge Test at MW017

Because of the short length of the MW017 pumping test, no trend or barometric adjustments were required.

For the MW017 test, the only detectable drawdown and recovery occurred at the pumped well (Appendix F). Water levels measured in PZ003 and PZ004 prior to the start of the test defined a downward trend that correlates well with a downward trend in the background well, MW013.

---

2 These methodologies are well documented in the literature (all appear in Lohman, 1972). These methods assume confined, homogeneous, isotropic aquifers with fully penetrating wells and no boundary effects. The Hantush-Jacob method assumes a vertical supply of water, i.e., leaky aquifer conditions.

TABLE 3–1
SUMMARY OF ANALYSES – MW003 RECOVERY DATA
DETROIT ARSENAL

POINT OF OBSERVED RECOVERY	METHOD OF ANALYSIS	RADIAL DISTANCE (feet)	TRANSMISSIVITY T (feet squared/day)	HYDRAULIC CONDUCTIVITY K (cm/sec)	STORATIVITY S (dimensionless)	REMARKS
MW003	Residual Drawdown	0	17.1	2.6 x 10–4	– – –	pumped well
PZ001	Theis	10	6.8	1.0 x 10–4	0.0001	before curve departure
	Hantush–Jacob	10	5.3	8.1 x 10–5	0.0003	assume leaky confined aquifer
	Residual Drawdown	10	18.8	2.9 x 10–4	0.027	late–time data only
PZ002	Theis	20	6.4	9.7 x 10–5	0.0012	before curve departure
	Hantush–Jacob	20	7.2	1.1 x 10–4	0.0004	assume leaky confined aquifer
	Residual Drawdown	20	18.1	2.8 x 10–4	0.054	late–time data only

GEOMETRIC MEAN
1.5 X 10–4

Pumping rate was 0.08 gal/min

Maximum Drawdown (end of pumping)
MW003 = 2.0 feet (approximate, unadjusted for trend or barometer)
PZ001 = 0.89 feet
PZ002 = 0.70 feet

Aquifer Thickness: 23 feet

Because these piezometers appear to respond to general water-level trends in the aquifer, the lack of response during the pumping test is attributed to drawdown not reaching the piezometers during the five-hour test.

Further insight into the hydraulic response to pumping MW017 is provided by a volumetric calculation of water removed (see Appendix F). It shows that nearly all of the water pumped from MW017 came directly from storage in the casing and sandpack surrounding the screen. Therefore, meaningful analysis of the drawdown curve is not possible.

An attempt was made to analyze the recovery curve that extended nearly 6,000 minutes in duration (Appendix F). After approximately 3,000 minutes into recovery, the linear plot of the water-level measurements follows a straight line, implying that the well filled at a constant rate after this time. This behavior is not typical of normal aquifer response and is thought to represent weeping of a calculated 4.1 gal/day (0.003 gpm) into the borehole sandpack/well casing. The residual drawdown method of analysis was applied through the computer code $\text{AQTESOLV}_{\text{TM}}$, and a T of 0.028 ft^2/d resulted from matching the late data that forms a straight line on a semilog plot. Dividing by a saturated aquifer thickness of 23 feet, a K_h of 4×10^{-6} cm/sec results . This value is regarded as a coarse approximation because the graphic solution gave an S of 0.77, which is significantly higher than the usual range of S in an unconfined aquifer (Freeze and Cherry, 1979-pg 61).

3.3 INTERPRETATION AND DISCUSSION OF CONSTANT-DISCHARGE TEST RESULTS

Pumping tests in low permeability soils commonly require a long period of time (weeks to months) for hydraulic stress (drawdown) to migrate tens of feet.

3.3.1 Discussion of Results of Constant-Discharge Test at MW003

For the MW003 pumping test, all three methods gave T values that are within a half order of magnitude of each other (see Table 3-1). The geometric mean of the seven analyses is 1.5×10^{-4} cm/sec, which is the same value of hydraulic conductivity determined by a slug test in MW003 (EEI, 1985).

Characterization of the aquifer in terms of S is not as straight forward because of the wide range in values (10^{-1} to 10^{-4}). To investigate S, modeling using a 2-D Theis computer code was performed. The objective was to duplicate the maximum drawdowns recorded (adjusted for trend and barometric influences) in the piezometers at the end of two days of pumping MW003 at a rate of 0.08 gpm. The input T was 9.8 ft^2/day, derived from an aquifer thickness of 23 feet multiplied by the geometric mean K_h. S was the only input variable between simulation runs. The following table compares measured drawdowns to drawdowns produced by the best-fit model (S = $4x10^{-4}$).

	PUMPING TEST MEASURED DRAWDOWN (feet)	SIMULATED DRAWDOWN (feet) (Theis Model, Storativity = 4×10^{-4})
MW003	approx. 2.0	1.46
PZ001	0.89	0.88
PZ002	0.70	0.70

Considering that well losses would increase drawdown in the pumped well beyond that simulated, the model results (using an S of 0.0004) closely match measured values. In fact, for thin semiconfined aquifers, a confined S of 10^{-4} is typical. Further support for a small S is the moderate to high barometric efficiency (discussed in Appendix F) which is nearly always associated with a small S. The values of S from the residual drawdown analysis (0.05 and 0.03 for PZ001 and PZ002, respectively) are somewhat contradictory, but may provide evidence that the actual steady-state S is in the normal range of unconfined aquifers (i.e., 0.01 to 0.30). A probable explanation for this apparent contradiction is that the aquifer acts more confined during the initial stages of stress than during longer-term stress when unconfined characteristics predominate. This test interpretation implies that the aquifer will exhibit unconfined behavior during lengthy periods of pumping, and the specific yield may be in the range of 0.04.

Flattening of the log-log plots in the latter part of the test suggest that stabilization had been reached. A likely cause is that the clayey aquifer was experiencing leakage inflow (Hantush-Jacob response) into the pumped zone from geologic materials located either above or below. After a period of time that could last weeks or months, vertical leakage induced by the depressed water table may diminish and drawdown increase again.

3.3.2 Discussion of Results of Constant-Discharge Test at MW017

Because well storage effects dominate the rate of recovery in the AQTESOLV analysis of MW017, the resulting K_h estimate ($4x10^{-7}$ cm/sec) for the MW017 test is considered approximate. Even so, it compares reasonably well with the original slug test (K_h of $2.9x10^{-6}$, EEI, 1985) considering that the S produced by the $AQTESOLV_{TM}$ program indicates that the curve match is not quite right. The matching problem is probably due to well storage effects. The lack of data from observation wells precludes calculation of S.

This pumping test, combined with geologic data and historical slug testing data, indicates that the tested soils at MW017 have very low permeability.

3.3.3 Summary of Pumping Test Analyses

The average estimated K_h based on the analyses of the constant-discharge test at MW003 is $1.5x10^{-4}$ cm/sec. The corresponding T is 9.8 ft^2/day. At MW003, the long-term S is believed to be approximately 0.04.

At MW017, the estimated K_h is $4x10^{-7}$ cm/sec which would correspond to a T of 0.026 ft^2/day. The data collected were insufficient to calculate S.

A generalization for the hydraulic parameters across the site is not possible: the results from MW003 and MW017 demonstrate that hydraulic conditions range considerably -- up to three orders of magnitude -- from place to place. However, based on the available geologic information (well logs and slug test values) the T, K_h, and S calculated from the MW003 test data are likely to be representative of the most permeable soils on the site.

3.4 GROUNDWATER FLOW DIRECTION

Groundwater level measurements were recorded from monitoring wells at the Detroit Arsenal on December 19, 1992, prior to the first constant-discharge test (Table 3-2). Groundwater was measured at depths ranging from approximately 0.5 feet to 8.5 feet below the ground surface. As previously

observed during past monitoring events the groundwater elevation is highest in the southeast portion of the site (Figure 3-2); thus, the dominant groundwater flow direction across the site is to the north. ABB-ES' interpretation of the groundwater elevations is that groundwater flows east off the site in the vicinity of MW014.

Although the groundwater elevations observed at wells MW016, MW017, and MW018 could be interpreted as indicating a localized depression in the water table, no pumping, underground drains, or other dewatering mechanism is known to the facility's environmental engineer (B. Zane) that would explain a closed depression. Differences in well construction and/or unknown underground structures may influence the observed water levels in this area. Also, the existing boring logs indicate that the soils in this area are heterogenous in nature, and it is possible that the shallow soils contain perched groundwater. A review of pumping test data and water-level elevations collected at MW017 indicates that this well is very slow to reach equilibrium; therefore, the water levels measured at MW017 may reflect a local disturbance rather than a static condition.

Based on the gradient between MW003 and MW008, the geometric K_h, and using 0.04 to approximate effective porosity, the groundwater flow velocity in this area is approximately 50 feet per year. If the same K_h and effective porosity are used, the groundwater flow velocity between MW004 and MW014 is approximately 10 feet per year. (Calculations are included in Appendix E.)

TABLE 3-2
GROUNDWATER ELEVATIONS
DECEMBER 19, 1992
DETROIT ARSENAL

WELL	TOP OF RISER ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
MW 001	627.76	2.96	624.80
MW 002	625.84	4.50	621.34
MW 003	625.70	4.59	621.11
MW 004	627.03	8.80	618.23
MW 005	628.76	5.16	623.60
MW 006	625.97	3.72	622.25
MW 007	627.05	6.61	620.44
MW 008	623.14	5.39	617.75
MW 009	624.76	4.57	620.19
MW 010	624.79	6.38	618.41
MW 011	621.04	5.62	615.42
MW 012	622.31	4.41	617.90
MW 013	621.90	4.41	617.49
MW 014	621.36	7.47	613.89
MW 015 *			
MW 016	622.58	8.07	614.51
MW 017	622.83	11.04	611.79
MW 018	623.39	9.11	614.28

Note: * = This well has been abandoned and is no longer in existence.

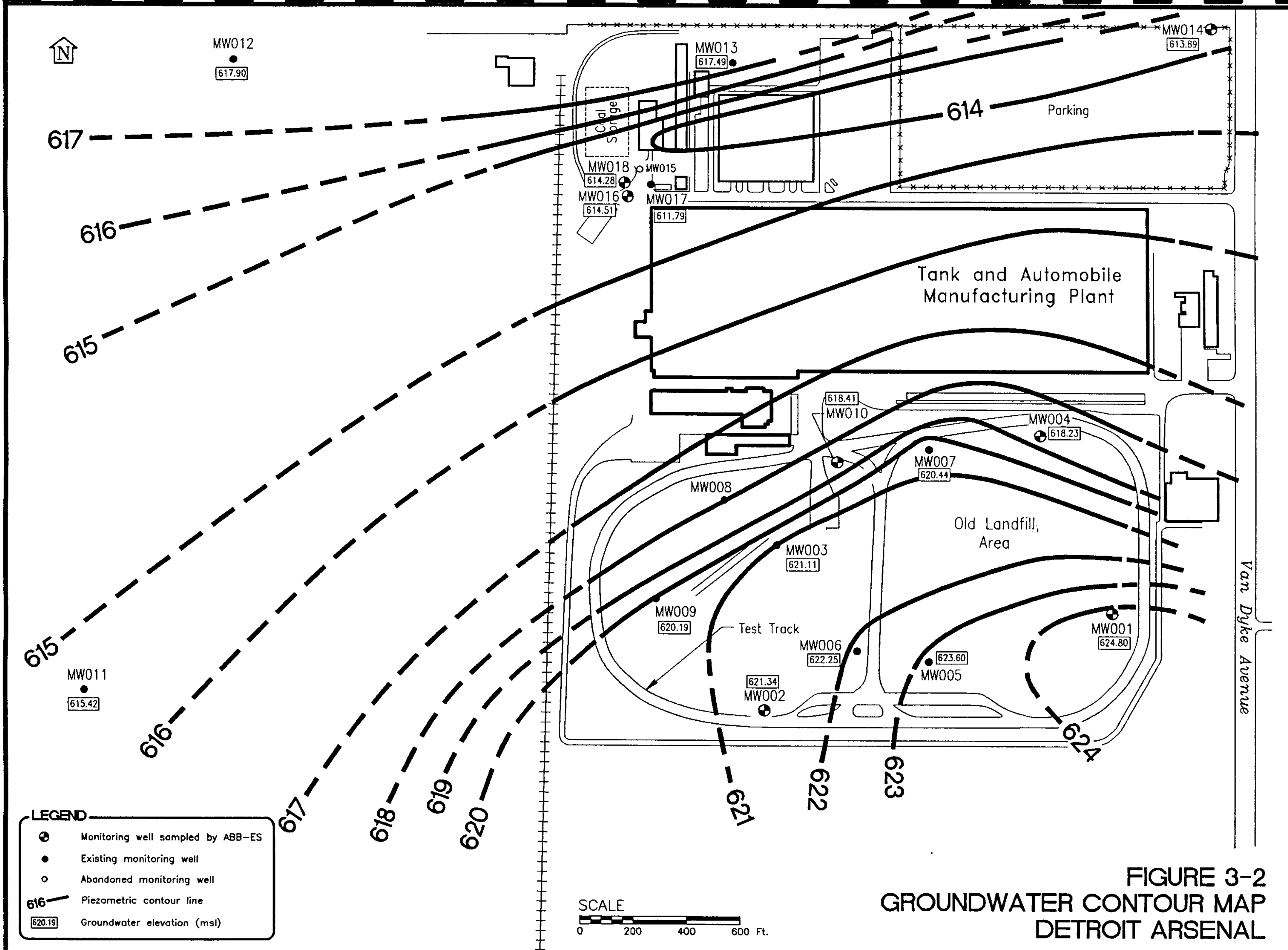


FIGURE 3-2
GROUNDWATER CONTOUR MAP
DETROIT ARSENAL

ABB Environmental Services, Inc.

A9308011/7027-01/AC222 | Drawn: DGH | Rev: 09/27/93 By: DGH

4.0 GROUNDWATER SAMPLING

In January and April 1993, seven groundwater samples were collected from the Detroit Arsenal monitoring wells shown on Figure 4-1. The purpose of these sampling events was to assess the current groundwater chemistry at the Detroit Arsenal facility and to compare the data to historical data (EEI, 1985; Dames and Moore,1990). The samples collected in 1993 were analyzed for volatile organic compounds (VOCs), base-neutral/acid extractable compounds (BNAs), dissolved metals, chloride, sulfate, and oil and grease in accordance with USAEC procedures as shown on Table 4-1. In addition, one trip blank (for VOC analysis only) and one rinsate blank were collected and analyzed for quality control purposes.

Various organic compounds, dissolved metals, and water quality parameters were detected in site samples. These results are discussed in Section 4.2 after a brief discussion (Section 4.1) of the quality control samples. A summary of the analytical results from Rounds 1 and 2 is presented in Table 4-2; parameters that exceeded the relevant regulatory standards (Table 4-3) are shaded. Appendix G contains the complete set of analytical results as reported in IRDMIS (Installation Restoration Data Management Information System).

The data were reviewed and validated by the laboratory prior to transmission into USAEC's IRDMIS data base. The USAEC Chemistry Branch determined that the analytical data lots were acceptable for use.

4.1 QUALITY CONTROL SAMPLES

Quality control samples analyzed during this project included rinsate blanks, trip blanks, and laboratory method blanks. Results of these samples are summarized in Table 4-4.

An assessment of the quality control blanks was conducted following the procedure for establishing action levels discussed in USEPA guidelines (USEPA, 1991, 1989). If an analyte was detected in a blank, action levels were set at five times the concentration found in the blank (ten times the concentration for the common contaminants acetone, methylene chloride, toluene and common phthalate esters). Sample concentrations less than the action level are considered undetected.

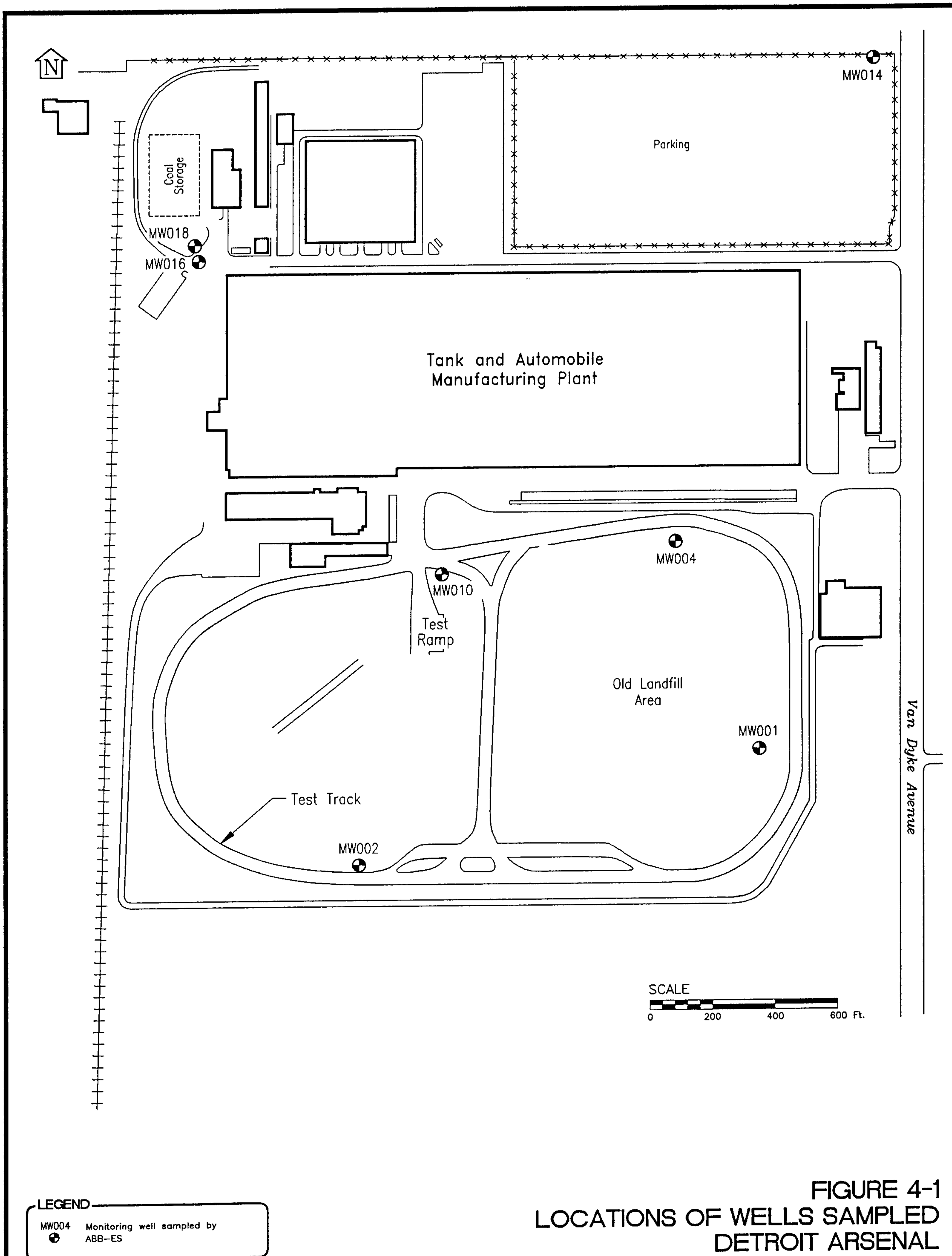


FIGURE 4-1
LOCATIONS OF WELLS SAMPLED
DETROIT ARSENAL

ABB Environmental Services, Inc.

A9308020/7027-01/AC184 | Drawn: DGH | Rev: 08/18/93 By: DGH

TABLE 4–1
GROUNDWATER SAMPLING AND ANALYTICAL PROGRAM
DETROIT ARSENAL

	VOCs	Semi-volatiles	PCBs/ Pesticides	Dissolved Metals	Nitrate/ Nitrite	Chloride/ Sulfate	Cyanide	Oil & Grease	Petroleum Hydrocarbons
USAEC Aqueous Method:	UM20	UM18	UH02/UH13	**	TF22	TT10	TF18	none	none
USEPA Aqueous Method:	624	625	608	**	300.0	300.0	335.2	413.2	418.1
ASTM Type II Water	2*	1	1	1	1	1	1	1	1
Trip Blank	2*	–	–	–	–	–	–	–	–
Round 1 Groundwater									
Wells	7	7	7	7	7	7	7	7	7
Rinsate Blank	1	1	1	1	1	1	1	1	1
Trip Blank	1	–	–	–	–	–	–	–	–
Round 2 Groundwater									
Wells	7	7	7	7	7	7	7	7	7
Rinsate Blank	1	1	1	1	1	1	1	1	1
Trip Blank	1	–	–	–	–	–	–	–	–
Total Samples	22	17	17	17	17	17	17	17	17

Notes: A dash (–) indicates no samples were collected.
* – One sample was analyzed for Methylene Chloride only.
** – Methods for Dissolved Metals as follows:
Aqueous: USAEC Methods: Arsenic (SD22), Thallium (SD09), Lead (SD20), Selenium (SD21), Mercury (SB01), all others (SS10).
USEPA Methods: Arsenic (206.2), Thallium (279.2), Lead (239.2), Selenium (270.2), Mercury (245.1), all others (200.7).

SUMMARY OF ANAL
J

		CRL µg/L	MW001 1/93	MW001 4/93	MW002 1/93	MW002 4/93	MW004 1/93	
Volatile Organic Compounds								
C6H6	Benzene	0.5	–	–	–	–	–	
CCL4	Carbon tetrachloride	0.58	–	–	–	–	–	
CHCL3	Chloroform	0.5	–	–	–	–	–	
11DCLE	1,1–Dichloroethane	0.68	–	–	–	–	–	
11DCE	1,1–Dichloroethene	0.5	–	–	–	–	–	
12DCE	1,2–Dichloroethene (total)	0.5	–	–	7.0	0.86	–	
12DCLP	1,2–Dichloropropane	0.5	–	–	–	–	–	
111TCE	1,1,1–Trichloroethane	0.5	–	–	–	–	–	
TRCLE	Trichloroethene	0.5	–	–	1.7	–	–	
Base–Neutral/Acid Extractables								
B2EHP	Bis(2–ethylhexyl)phthalate	4.8	6.4	–	–	–	–	
Metals								
AS	Arsenic	2.54	3.2	–	–	–	–	
SB	Antimony	38	–	–	–	–	–	
BA	Barium	5	128	94.4	48.1	43.1	44.3	
CA	Calcium	500	341,000	278,000	241,000	185,000	232,000	2
FE	Iron	38.8	2,580	1,170	–	111	138	
K	Potassium	375	3,200	*	9,650	9,770 G	747	
MG	Magnesium	500	127,000	105,000	70,200	50,500	55,400	
MN	Manganese	2.75	1,300	917	104	19.5	8.97	
NA	Sodium	500	126,000 G	83,900 G	55,300 G	37,900 G	129,000 G	1
V	Vanadium	11	18.8	–	14.3	–	11.8	
ZN	Zinc	21.1	98.6	–	–	–	90.4	
Water Quality Parameters								
CL	Chloride	2,120	300,000	260,000	60,000	36,000	80,000	
SO4	Sulfate	10,000	400,000	300,000	350,000	226,000	400,000	34
NIT	Nitrogen, (NO2 + NO3)	10	33.6	21.3	24.8	75.8	36.2	
OILGR	Oil and Grease	181	–	–	355	–	297	

Notes: 1. A dash (–) indicates the analyte was analyzed for but not detected.
2. * – The value is below the blank action level and is considered undetected.
3. G – Compound was found in the associated rinsate blank but this value is above the action level.
4. Shaded values exceeded one or more of the water quality criteria presented in Table 4–3.
5. CRL = Certified Reporting Limit.

TABLE 4–2
SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER (μg/L)
JANUARY AND APRIL 1993
DETROIT ARSENAL

MW001		MW002		MW004		MW010		MW014	
93	4/93	1/93	4/93	1/93	4/93	1/93	4/93	1/93	4/93
–	–	–	–	–	–	–	–	–	-
–	–	–	–	–	–	–	–	–	-
–	–	–	–	–	–	–	–	–	-
–	–	–	–	–	–	–	–	–	-
–	–	–	–	–	–	–	–	–	-
–	–	7.0	0.86	–	–	1.2	0.78	–	-
–	–	–	–	–	–	–	–	–	-
–	–	–	–	–	–	–	–	–	-
–	–	1.7	–	–	–	0.62	0.70	–	-
6.4	–	–	–	–	–	–	–	6.2	-
3.2	–	–	–	–	–	–	–	–	-
–	–	–	–	–	–	–	–	–	53.
128	94.4	48.1	43.1	44.3	31.1	62.5	53.7	162	13
1,000	278,000	241,000	185,000	232,000	218,000	189,000	145,000	229,000	211,00
,580	1,170	–	111	138	43.8	–	–	–	46..
3,200	*	9,650	9,770 G	747	*	2,840	*	3,460	*
7,000	105,000	70,200	50,500	55,400	58,300	60,200	44,400	152,000	138,00
,300	917	104	19.5	8.97	3.19	4.98	–	14	3.9
5,000 G	83,900 G	55,300 G	37,900 G	129,000 G	114,000 G	282,000 G	193,000 G	309,000 G	312,00
18.8	–	14.3	–	11.8	–	–	–	15.2	12..
98.6	–	–	–	90.4	–	100	–	26.3	–
,000	260,000	60,000	36,000	80,000	99,000	520,000	310,000	1,000,000	1,000,00
,000	300,000	350,000	226,000	400,000	340,000	145,000	104,000	142,000	135,00
33.6	21.3	24.8	75.8	36.2	33	42.3	55.4	46.7	1!
–	–	355	–	297	–	359	–	–	–

for but not detected.
nd is considered undetected.
nsate blank but this value is above the action level.
.ter quality criteria presented in Table 4–3.

2

LE 4-2
SULTS FOR GROUNDWATER (μg/L)
ND APRIL 1993
Γ ARSENAL

MW010		MW014		MW016		MW018	
1/93	4/93	1/93	4/93	1/93	4/93	1/93	4/93
–	–	–	–	0.97	–	–	–
–	–	–	–	–	–	0.64	–
–	–	–	–	–	–	*	*
–	–	–	–	130	69	–	–
–	–	–	–	1.5	–	–	–
1.2	0.78	–	–	–	–	–	–
–	–	–	–	8.5	4.2	–	–
–	–	–	–	19	5.7	–	–
0.62	0.70	–	–	–	–	–	–
–	–	6.2	–	–	–	7.9	–
–	–	–	–	–	–	–	–
–	–	–	53.1	–	–	–	60.7
62.5	53.7	162	133	94.4	73.2	113	113
189,000	145,000	229,000	211,000	207,000	243,000	130,000	150,000
–	–	–	46.3	–	85.1	–	–
2,840	*	3,460	*	–	*	5,240	6,320 G
60,200	44,400	152,000	138.000	53,300	64,400	87,400	103,000
4.98	–	14	3.96	1,750	1,710	3.16	–
82,000 G	193,000 G	309,000 G	312,000 G	413,000 G	436,000 G	115,000 G	127,000 G
–	–	15.2	12.3	–	–	12.9	13.5
100	–	26.3	–	34.2	–	–	–
20,000	310,000	1,000,000	1,000,000	1,000,000	1,200,000	410,000	520,000
145,000	104,000	142,000	135,000	109,000	11,000	172,000	183,000
42.3	55.4	46.7	19	19.3	–	88	85.2
359	–	–	–	–	–	–	–

TABLE 4-3
WATER QUALITY CRITERIA
DETROIT ARSENAL

	FEDERAL CRITERIA		STATE OF MICHIGAN ACT 307 CRITERIA		
	MCLs	SMCLs	Type B Health-Based	Type B Aesthetic	Type A (1) (MDL)
ORGANICS					
Benzene	5 (f)	NA	1.2	NA	1
Bromodichloromethane	100 (t)	NA	0.56	NA	1
Carbon Tetrachloride	5 (f)	NA	0.27	NA	1
Chloroform	100 (t)	NA	5.6	NA	1
Chloromethane	NA (s)	NA	2.7	NA	1
1,1-Dichloroethane	NA	NA	840	NA	1
1,1-Dichloroethene	7 (f)	NA	7	NA	1
1,2-Dichloroethane (total)	5 (f)	NA	0.38	NA	1
1,2-Dichloroethene (total)	70 (f,2)	NA	77 (2)	NA	1
1,2-Dichloropropane	5 (f)	NA	0.52	NA	1
Methylene Chloride	5 (f)	NA	4.6	NA	1
Toluene	1,000 (f)	NA	1,500	790	1
1,1,1-Trichloroethane	200 (f)	NA	200	NA	1
Trichloroethene	5 (f)	NA	2.2	NA	1
Bis(2-ethylhexyl)phthalate	NA	NA	2.5	NA	5
Vinyl Chloride	2 (f)	NA	0.016	NA	1
INORGANICS					
Arsenic	50 (r)	NA	0.02	NA	1
Antimony	6 (f)	NA	2.4 (d)	NA	5
Barium	2,000 (f)	NA	2,400 (d)	NA	200
Cadmium	5 (f)	NA	3.5 (d)	NA	0.2
Chromium *	100 (f)	NA	120 (d)	NA	1
Copper	NA	1,000 (f)	1,300 (d)	1,000	25
Iron	NA	300 (f)	NA	300 (d)	100
Lead	NA	NA	4 (d,o)	NA	3
Manganese	NA	50 (f)	170 (d)	50 (d)	20
Silver	NA	100 (f)	33 (d)	100	0.5
Sodium	NA	NA	150,000	NA	NA
Vanadium	NA	NA	61 (d)	NA	20
Zinc	NA	5,000 (f)	2,300 (d)	5,000 (d)	20
Chloride	NA	250,000 (f)	NA	250,000	NA
Sulfate	NA	250,000 (f)	NA	250,000	NA
Nitrate + Nitrite, as N	10,000 (f)	NA	1,000 (3)	NA	NA

Notes:
Units are expressed in micrograms per liter (ug/L).
See next page for definition of the criteria types.
* – The federal criterion is for total chromium. The State of Michigan criterion is based on Cr VI, but applies to all chromium data.
(d) – Use local background if higher than criteria and representative of background as defined in Rule 701.
(f) – Final.
(o) – Higher level may be acceptable if soil concentration is less than 400 ppm and groundwater migrating off site will not impact adjacent properties.
(r) – Under review.
(s) – Being studied for possible regulation.
(t) – Tentative.
(1) – In cases where Type B criterion is less than Type A criterion, Type A criterion becomes the cleanup level.
(2) – Criteria based on cis-1,2-dichloroethene.
(3) – Criteria based on nitrite.
NA – Not Available.
[ ] – Lowest applicable criterion

No criteria are available for Oil and Grease, Calcium, Potassium, Magnesium, and Total Organic Carbon.

References: MDNR Act 307 Criteria: "MERA Operational Memorandum #8, Revision 1 – Type B Criteria Rules", MDNR, July 16, 1993.
Federal Criteria: "Drinking Water Regulations and Health Advisories," Office of Water, USEPA, May 1993.

TABLE 4-3 (continued)
TYPES OF GROUNDWATER CRITERIA
DETROIT ARSENAL

FEDERAL CRITERIA

MCL: Maximum Contaminant Level. Maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

SMCL: Secondary Maximum Contaminant Level. A non-enforceable, recommended maximum concentration of a contaminant. These levels are based on aesthetic qualities rather than on human-health risk.

STATE OF MICHIGAN CRITERIA

The MDNR has established three different cleanup types (Types A, B, and C) for remediating sites of environmental contamination.

Type A: Cleanup is achieved when either of the following conditions is met:

1. The concentration of the hazardous substances does not exceed background.
2. The concentration of the hazardous substances does not exceed the acceptable method detection limit (MDL).

Type B: Health Based -- Uses concentrations based on standardized risk assessment guidelines and scenarios.

Aesthetic -- Uses concentrations based on the aesthetic traits (e.g., taste and odor) of each contaminant.

Type C: Concentrations are determined based on a site-specific risk assessment.

TABLE 4–4
SUMMARY OF RESULTS FOR QUALITY CONTROL SAMPLES
JANUARY AND APRIL 1993
DETROIT ARSENAL

SAMPLE	CHEMICAL		CONCENTRATION µg/L	ACTION LEVEL µg/L
Round 1				
Trip Blank (TBLK–1)	BRDCLM	Bromodichloromethane	0.68	3.4
	CH2CL2	Methylene chloride/Dichloromethane	2.6	26
	CHCL3	Chloroform	6.5	32.5
Rinsate Blank (RBLK–1)	NA	Sodium	7,570	37,850
	CH2CL2	Methylene chloride/Dichloromethane	6.1	61
	CHCL3	Chloroform	5.6	28
Method Blanks	FE	Iron	67.3	336.5
	CHCL3	Chloroform	0.78	3.9
Round 2				
Trip Blank (TBLK–1)	CHCL3	Chloroform	4.2	21
Rinsate Blank (RBLK–1)	K	Potassium	773	3,865
	NA	Sodium	560	2,800
	CHCL3	Chloroform	3.9	19.5
Method Blanks		None		

4.1.1 Round 1 Quality Control Samples

Chloroform was detected at a concentration of 0.78 μg/L in one of the laboratory method blanks associated with the Round 1 organic samples. Bromodichloromethane, chloroform and methylene chloride were found in the trip blank associated with all samples at concentrations of 0.68 μg/L, 6.5 μg/L, and 2.6 μg/L, respectively. Chloroform and methylene chloride were also detected in the rinsate blank at concentrations of 5.6 μg/L and 6.1 μg/L, respectively. Bromodichloromethane and methylene chloride were not detected in the site samples. Chloroform was detected in MW018 at a concentration of 0.79 μg/L. This concentration is below the action level calculated as part of the blank assessment process; its presence is attributed to the contamination found in the associated blanks.

The laboratory method blanks associated with the Round 1 inorganic samples were free from contamination. Sodium was found in the rinsate blank associated with all samples at a concentration of 7,570 μg/L. Because sample concentrations of sodium ranged from 55,300 to 413,000, it is unlikely that this contamination was from the rinsing procedures. Sodium is common in most public water supplies and is often not completely removed by ion exchange resins used to generate ion-free water.

4.1.2 Round 2 Quality Control Samples

The laboratory method blanks associated with the Round 2 organic samples were free from contamination. Chloroform was detected in the trip and rinsate blanks at concentrations of 4.2 μg/L and 3.9 μg/L, respectively. Chloroform was detected in MW018 at a concentration of 0.88 μg/L. This concentration is below the action level calculated as part of the blank assessment process; and its presence is attributed to the contamination found in the associated field blanks.

The laboratory method blanks associated with the Round 2 inorganic samples were free from contamination. Sodium was found in the rinsate blank associated with all samples at a concentration of 560 μg/L. Because sample concentrations of sodium ranged from 38,000 to 436,000, it is unlikely that this contamination was from the rinsing procedure. Potassium was also detected in the rinsate blank at a concentration of 773 μg/L. Potassium was found in the samples at concentrations ranging from 673 μg/L to 9,770 μg/L. Only potassium from MW02 (at 9,770 μg/L) and MW018 (at 6,320

μg/L) should be considered site related. The remaining potassium concentrations were below the action levels calculated during the blank assessment process; its presence is attributed to the contamination found in the associated field blank.

4.2 DISCUSSION OF GROUNDWATER RESULTS

In this section, analytical results for samples collected in 1993 are compared to regulatory criteria and to historical data. When appropriate, distribution patterns are also mentioned.

4.2.1 Organic Compounds Detected in 1993

Only eight VOCs were detected in the groundwater at the Detroit Arsenal site. Many of the compounds were detected just above the Certified Reporting Limit (CRL). Most of the compounds which were detected in the January sampling event were found at lower concentrations during the April event.

Of the volatile compounds detected in Rounds 1 and 2, only 1,2-dichloropropane in MW016 exceeded the regulatory criteria (see Tables 4-2 and 4-3). Samples collected from monitoring wells MW001, MW004, and MW014 did not contain any volatile compounds. In MW018, only carbon tetrachloride was detected at a concentration slightly above the CRL (January 1993). Trichloroethene (TRCLE) and 1,2-dichloroethene (12DCE) were detected in monitoring wells MW002 and MW010 at low concentrations. In January 1993, five compounds (benzene, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloropropane, and 1,1,1-trichloroethane) were detected in MW016, but only three of these compounds (1,1-dichloroethane, 1,2-dichloropropane, and 1,1,1-trichloroethane) were detected in April 1993.

Only one BNA compound was detected during Rounds 1 and 2; bis(2-ethylhexyl)phthalate (B2EHP) was detected in MW001, MW014, and MW018 at concentrations exceeding the regulatory criteria during January 1993. Although B2EHP was not detected in any of the quality control blanks, this compound is a common laboratory contaminant. Because this compound was not detected in any well during the April sampling event, the presence of this compound in groundwater is questionable.

4.2.2 Inorganic Parameters Detected in 1993

Eleven elements were detected during the Round 1 and 2 sampling events. Of these eleven elements, only five (arsenic, antimony, iron, manganese, and sodium) were detected in concentrations exceeding the relevant regulatory criteria. Arsenic was detected in MW001 at a concentration of 3.2 µg/L during Round 2. Antimony was found during the Round 2 sampling event in MW014 and MW016 at concentrations of 53.1 µg/L and 60.7 µg/L, respectively. MW001 contained iron which exceeded regulatory aesthetic criteria with concentrations of 2,580 µg/L and 1,170 µg/L during Rounds 1 and 2, respectively. Manganese exceeded water quality criteria during both sampling events in wells MW001 (1,300 µg/L and 917 µg/L) and MW016 (1,750 µg/L and 1,710 µg/L). In MW002, only the Round 1 sample (104 µg/L) exceeded the criteria for manganese. Sodium was above the regulatory criteria in samples collected from MW010, MW014, and MW016 during both Round 1 and Round 2.

4.2.3 Water Quality Parameters Detected in 1993

Of the four water quality parameters analyzed, only chloride and sulfate exceeded water quality criteria. Chloride exceeded the regulatory criteria in ten out of 14 samples collected with concentrations ranging from 260,000 µg/L to 1,200,000 µg/L. Only MW002 and MW004 did not contain chloride at concentration levels exceeding the criteria. Sulfate exceeded the criteria in MW001 (400,000 µg/L and 300,000 µg/L) and MW004 (400,000 µg/L and 340,000 µg/L) during both sampling events. In MW002, only the Round 1 sample exceeded the criteria with a concentration of 350,000 µg/L.

4.2.4 Comparison of 1993 Groundwater Results to Historical Data

Groundwater results for all monitoring wells sampled during the Round 1 and Round 2 sampling events were compared to historical data collected by EEI and Dames and Moore. For the seven wells sampled in 1993, all analytes which have been detected are summarized in Appendix H. For comparison purposes, each page of this table contains the data for only one monitoring well.

4.2.4.1 Organic Compounds. Based upon historical data, VOCs have been consistently detected in MW002 and MW016. The VOCs consistently detected in MW002 are 1,2-dichloroethene (12DCE) and trichloroethene (TRCLE). Concentrations of these compounds, although variable, have decreased over time. Neither compound exceeded regulatory criteria during the 1993 sampling events. Vinyl chloride was detected in this well in 1990, but was not detected in 1984 or 1993.

The VOCs previously detected in MW016 include benzene (C6H6), 1,1-dichloroethene (11DCE), 1,1-dichloroethane (11DCLE), 1,2-dichloropropane (12DCLP) and 1,1,1-trichloroethane (111TCE). As was observed in MW002, chemical concentrations have generally decreased over time. Two of the five original compounds detected in 1984 (C6H6 and 11DCE) were not detected in April 1993. Only 12DCP was detected above the regulatory groundwater criteria.

In 1993, 12DCE and TRCLE were detected in MW010 but have not been consistently found in historical sampling events. 12DCE was detected at a comparable concentration in January 1990 but neither compound was detected in subsequent 1990 sampling rounds. Both compounds were detected at concentrations just above the CRL and neither compound was above regulatory criteria.

Bis(2-ethylhexyl)phthalate is the only BNA target compound which has been detected in these wells. This compound has been found only sporadically and is considered to be a common laboratory contaminant. As such, it is questionable whether this compound is site related.

The sample collected from MW016 in January 1993 contained four unknown compounds. The sample collected from this well in April 1993 contained three unknowns as well as one tentatively identified compound: 1,1,2-trichloro-1,2,2-trifluoroethane (TCLTFE). TCLTFE has been tentatively identified in all samples collected from this well except for the one collected in January 1993. Correlation among unknown compounds is not possible because assignment of the unknown label can vary from analysis to analysis.

4.2.4.2 Inorganic Parameters. Comparison of inorganic elemental data are somewhat limited because not all parameters that were analyzed for in 1993 have been previously reported. No notable trends were observed.

In MW001, arsenic was detected in January 1993 above regulatory criteria, but was not detected in the April 1993 sample. The January detection was the only detection of arsenic in MW001 in six separate sampling events. Similarly, zinc was detected in several wells only during the January 1993 sampling event. The zinc concentrations detected were well below regulatory criteria.

In April 1993, antimony was detected in MW014 and MW018 at concentrations exceeding water quality criteria. This element had not been analyzed for in samples from these wells prior to 1993. However, because antimony was not detected in January 1993, its presence in these wells may be suspect or may have recently migrated to these wells from another source.

Barium, calcium, and magnesium were detected in every monitoring well during the January 1993 sampling event, but only barium had been analyzed for previously (September 1984). The 1984 reporting limit for barium was 1,000 µg/L; therefore, it is uncertain whether this element was present at concentrations comparable to the 1993 levels which ranged from 31.1 µg/L to 162 µg/L. Concentrations of calcium ranged from 130,000 µg/L to 341,000 µg/L, and magnesium concentrations ranged from 44,400 µg/L to 127,000 µg/L. None of these elements exceeded regulatory criteria.

Potassium and vanadium were also detected in 1993 but were not analyzed for previously. Potassium was detected in eight out of fourteen samples at concentrations ranging from 747 µg/L to 9,770 µg/L. Vanadium was detected in seven out of fourteen samples at concentrations ranging from 11.8 µg/L to 18.8 µg/L. Both elements were detected below all regulatory criteria.

Every monitoring well contained sodium in 1993; this element was not analyzed for in previous sampling events. Concentrations of sodium ranged from 37,000 µg/L to 436,000 µg/L. MW010, MW014, and MW016 had concentrations of sodium which exceeded the regulatory level of 150,000 µg/L.

Iron was detected in MW001, MW002, MW004, MW014, and MW016. Only the concentrations detected in samples collected from MW001 exceeded the aesthetic regulatory criterion.

Manganese was detected in 38 of 42 samples collected and was detected in all monitoring wells. The detected concentrations of manganese ranged from 3.16 µg/L to 3,120 µg/L. Manganese was detected

in all samples collected from MW016 at concentrations ranging from 326 μg/L to 3,120 μg/L. All of these samples exceed the Michigan Type B aesthetic criteria of 50 μg/L.

In MW001, manganese was detected in all samples collected and the concentrations have increased over time. Concentrations of manganese were below 300 μg/L prior to 1990. After 1990, the concentrations ranged from 658 μg/L to 1,300 μg/L. The level of manganese was above the Type B aesthetic criteria in all samples collected from MW001. In addition, the apparent increase of this element in MW001 indicates the possibility of contaminant migration from underground sources at the site. At MW002, manganese was above the Type B aesthetic criteria in January 1993 and below it in April 1993. All 1993 manganese concentrations in MW004, MW010, MW014, and MW018 were below regulatory criteria.

4.2.4.3 Water Quality Parameters. Every monitoring well contained chloride in 1993; this element was not analyzed for in previous sampling events. Concentrations of chloride ranged from 36,000μg/L to 1,200,000 μg/L. Chloride exceeded the Michigan Type B aesthetic criteria of 250,000 μg/L in ten out of 14 samples collected with concentrations ranging from 260,000 μg/L to 1,200,000 μg/L. Only MW002 and MW004 contained chloride at concentrations which did not exceed the regulatory level.

Sulfate was detected in 40 of 41 samples analyzed with detected concentrations ranging from 11,000 μg/L to 540,000 μg/L. The concentrations of sulfate remained consistent with time which indicates that the analyte may not be migrating or it may be a background concentration. Sulfate in MW010, MW014, MW016 and MW018 was consistently found at or below the Michigan Type B aesthetic criteria of 250,000 μg/L. Concentrations of sulfate in MW001, MW002, and MW004 were consistently detected near or above the criteria.

Oil and grease have never been detected in MW001, MW014, or MW018 but have been detected at MW002, MW004, MW010 and MW016. In general, oil and grease concentrations have been decreasing across the site with time. The highest oil and grease concentration was 94,000 μg/L at MW016 in July 1988. In January 1993, oil and grease were found only in MW002, MW004, and MW010 at concentrations of 355 μg/L, 297 μg/L, and 359 μg/L, respectively. During the April 1993 sampling event, oil and grease were not detected above the CRL of 181 μg/L.

With the exception of MW018, nitrate/nitrite concentrations did not appear to vary with time. Concentrations of this parameter at MW018 dropped from 1,240 μg/L in September 1988 to 85.2 μg/L in April 1993. Except for the anomalously high concentration of nitrate/nitrite in September 1984, concentrations were similar from well to well and did not exceed regulatory criteria.

5.0 SUMMARY AND CONCLUSIONS

Task Order 3 was originally issued on September 26, 1991; the objectives of the task order were to collect the information necessary to estimate the groundwater flow direction, calculate the transmissivity, and determine groundwater quality in shallow soils. The major field tasks included in this task order were to perform two 72-hour constant-discharge tests and to collect and analyze two rounds of groundwater samples.

Work completed during previous investigations indicated that shallow soils were glacial lacustrine deposits with a low horizontal conductivity ($1x10^{-5}$ cm/sec). Most water levels were found to occur within 10 feet of the ground surface; the groundwater flow direction was identified as north-northeasterly. Various organic compounds, metals, and sulfate were detected in the groundwater, but the potential for migration of contaminants off site was considered to be low because of the low calculated groundwater flow rates.

As required by Task Order 3, ABB-ES conducted two 72-hour constant-discharge tests: one at MW003 and one at MW017. The test at MW003 was run for 24 hours after the drawdown data plots indicated that stabilized drawdown levels had been reached. The test at MW017 was stopped prematurely after five hours of pumping because of excessive drawdown in the pumped well.

The average estimated hydraulic conductivity (K_h) based on the analyses of the constant-discharge test at MW003 is $1.5x10^{-4}$ cm/sec. The corresponding transmissivity (T) is 9.8 ft^2/day. At MW003, the long-term storativity/specific yield (S) is believed to be approximately 0.04. At MW017, the estimated K_h is $4x10^{-7}$ cm/sec which would correspond to a T of 0.026 ft^2/day. The data collected were insufficient to calculate S.

A characterization of the hydraulic parameters for the site using the results from pumping tests at MW003 and MW017 demonstrate that hydraulic conditions range considerably -- up to three orders of magnitude -- from place to place. However, based on the available hydrogeologic information (primarily well logs and slug test values) the T, K_h, and S calculated from the MW003 test data are likely to be representative of the most permeable soils on the site.

As previously observed during past investigations, ABB-ES found the groundwater elevation to be highest in the southeast portion of the site. ABB-ES' interpretation of the groundwater elevations is that the dominant groundwater flow direction across the site is to the north and that the groundwater flows east off the site in the vicinity of MW014. The groundwater flow velocity is estimated to be approximately 50 feet per year between MW003 and MW008 and approximately 10 feet per year between MW004 and MW014.

Two rounds of groundwater samples were collected by ABB-ES: one in January 1993 and one in April 1993. The samples were analyzed for volatile organic compounds (VOCs), base-neutral/acid extractable compounds (BNAs), dissolved metals, chloride, sulfate, and oil and grease. Only eight VOCs were detected in the groundwater at the Detroit Arsenal site. Many of the compounds were detected just above the Certified Reporting Limit. Most of the compounds which were detected in the January sampling event were found at lower concentrations during the April event. Of the volatile compounds detected, only 1,2-dichloropropane (in MW016) exceeded the regulatory criteria. In general, concentrations of organic compounds have decreased since the first sampling event in 1984.

Fourteen inorganic parameters were detected in samples collected by ABB-ES. Of these fourteen parameters, only seven (arsenic, antimony, iron, manganese, sodium, chloride, and sulfate) were detected in concentrations exceeding current regulatory criteria. Arsenic was detected only once while antimony and iron were each detected twice above the current criteria. Manganese and sodium were detected five and six times, respectively, above current criteria. Chloride and sulfate were detected ten and five times, respectively, above current criteria. The concentrations of inorganic parameters have remained relatively constant since the first sampling event in 1984.

REFERENCES

Dames & Moore, 1990. "Final Report, 1990 Quarterly Monitoring Program, Detroit Arsenal, Warren, Michigan"; prepared for U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Aberdeen Proving Ground, Maryland; December 1990.

Envirodyne Engineers, Inc. (EEI), 1985. "Environmental Contamination Survey of the Detroit Arsenal"; prepared for U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Aberdeen Proving Ground, Maryland; August 1985.

Freeze, R. A. and J. A. Cherry, 1979. Groundwater; Prentice Hall, Englewood Cliffs, New Jersey.

Geraghty and Miller, Inc., 1989. Aquifer Test Solver (AQTESOLV), Version 1.1 Documentation, Reston, VA

Hantush, M. S., and C. E. Jacob, 1960. "Modification of the Theory of Leaky Aquifers"; Journal of Geophysical Research; Vol. 65, No. 11; pp. 3713-3725.

Heath, R.C. and F.W. Trainer, 1968. Introduction to Groundwater Hydrology; John Wiley and Son, Inc., New York

Lohman, S.W., 1979. Groundwater Hydraulics; U.S. Geological Survey Professional Paper 708.

U.S. Environmental Protection Agency (USEPA), 1989. "Risk Assessment Guidance for Superfund, Volume I Human Health Evaluation Manual (Part A)"; Office of Emergency and Remedial Response; USEPA 540/1-89/002; Washington, D.C.; December 1989 (Interim Final).

U.S. Environmental Protection Agency (USEPA), 1991. "National Functional Guidelines for Organic Data Review"; USEPA Contract Laboratory Program; Revised June 1991 (Draft).

APPENDIX A

LETTER REPORT: STEPPED-DISCHARGE TEST

ASEA BROWN BOVERI

December 6, 1991
7027-02 (2.72B)

Ms. Denise Hancsak
USATHAMA
CETHA-IR-A
Building 4480
Aberdeen Proving Grounds, MD 21010-5401

Subject: Letter Report - Step-Drawdown Test
Detroit Arsenal, Warren, Michigan, 11/26/91

REPORT ON MW-003 STEP-DISCHARGE TEST

We have completed our analyses of the step-discharge rate pumping test that was conducted on November 26, 1991, on well MW-003, which is located at the Detroit Arsenal/USATHAMA site. Below is provided a condensed summary of our findings and recommendations.

TEST OBJECTIVES

A step-discharge test was conducted to determine if a constant rate test is feasible in the lacustrine clay deposits at the site given the locations of the existing observation wells with respect to the proposed pumping well (MW-003). Determination of the optimum rate of a multi-day pumping test was also a goal.

METHODOLOGY

The step-discharge test was conducted at four successive discharge rates (Q) of 0.061, 0.154, 0.258 and 0.485 gallons per minute (gpm). The duration of each of the first three tests was 120 minutes. The fourth test could only be run for 70 minutes due to excessive drawdown in the pumping well. The water level in the pumping well was recorded at frequent time intervals throughout the test. Field personnel were fairly successful in maintaining a constant discharge rate throughout each test.

ABB Environmental Services, Inc.

261 Commercial Street
P.O. Box 7050
Portland, ME 04112
Telephone (207) 775-5400
Fax (207) 772-4762

ANALYSIS

The data were analyzed using the Birsoy and Summers (1980) method for determining certain aquifer parameters from step tests. The assumptions governing the application of this model are that the aquifer is confined, homogeneous and has a constant thickness, flow to the well can be expressed by Theis' nonequilibrium formula and drawdown (s) at any time can be determined by the principle of superposition.

The conditions at the site are believed to be unconfined; however, confined aquifer models can be used reliably as long as the drawdown is small compared to the saturated thickness of the aquifer. When the drawdown is great with respect to the saturated thickness, a correction factor must be applied to the observed drawdown measurements prior to analyses. It was necessary to apply this correction to the observed drawdown measurements, and even so, the adjusted drawdowns for the third discharge step may be approximate due to the large drawdown.

The analysis was implemented by plotting the data on semilog graph paper as specific drawdown versus adjusted time. Data for each step should plot on a straight line having a slope of 264/T (where T = transmissivity in gal/day/ft), if certain idealized aquifer conditions exist. When the data do not plot on the same line, it is usually because of:

- well efficiency head losses;
- well development is occurring, or;
- hydrologic boundaries are encountered by drawdown.

TEST RESULTS

Figure 1 is a Birsoy and Summers plot of the first three step tests of well MW-3. The fourth test was not included in the analysis because the well extensively dewatered during the test, thereby precluding accurate analyses of the drawdown data.

Two hydrologic conditions are evident on Figure 1. First, the well appears to be developing throughout the course of the step tests. This is evident by the reduction in specific discharge (s/Q) between the first and second test. The specific discharge of the third test is also less than that of the first test, but greater than that of the second test. Whatever was blocking the well screen during the first test appears to

ASEA BROWN BOVERI

have been removed during the second test. The plot of the third test is probably the most representative plot with regards to reflecting hydrologic conditions in the surrounding aquifer.

The second condition that is apparent from the plots is that a negative hydrogeologic boundary exists within hydraulic reach of the step tests. The plotted lines in theory should be straight. When the lines curve it is usually the result of a hydrologic boundary. Given the nature of lacustrine deposits, it is possible that some sand lenses that presumably transmit water to the well either pinch out or are areally intermittent.

A transmissivity value of 1.2 ft^2/day was calculated using the latter (steepest) part of the curve plotted from the third step test. Using a saturated thickness of 20 feet, this translates to a hydraulic conductivity (K_h) of 0.062 ft/day (2×10^{-5} cm/sec). This value of hydraulic conductivity is consistent with slug test values derived from the surrounding wells (EEI, 1984).

Projections for Multi-Day Constant Rate Test

Computer simulations were performed using the PT1 program, a pumping test design model (Walton, 1987). The simulations were conducted to evaluate the optimum pumping rate and test duration that would produce measurable drawdown at the closest existing monitoring well (MW-016)--a radial distance (r) of approximately 60 feet--without dewatering the pumping well (MW-017) and within a reasonable duration of pumping.

Various combinations of pumping rates, test durations, and aquifer properties were assumed to assess the impact on the estimated radius of influence. The simulations were conducted assuming water table conditions; the program takes into account aquifer dewatering. Both isotropic and anisotropic conditions were modeled assuming a vertical anisotropy of 1:1 and 10:1, respectively. The hydraulic parameters that were used for the simulations were values that were derived from the boring logs (e.g., saturated thickness = 20 feet) or from the step and slug tests (e.g., hydraulic conductivity = 0.062 ft/day). The duration of the pumping test simulation was varied between three and seven days. Specific yield (S_y)--the storativity parameter for an unconfined aquifer--and discharge rate were the only parameters that were adjusted. Specific yield values of 0.05 and 0.005 were used for the simulations. These values are within the range expected for unconfined to semiconfined silty/sandy clay deposits. The model output can be found in Attachment A. A summary of the results are presented on Table 1.

ASEA BROWN BOVERI

Discussion

As indicated by Table 1, specific yield is the most sensitive parameter affecting modeled drawdowns. If the actual specific yield is close to 0.05, it is unlikely that pumping at a rate of 0.1 gpm would produce measurable drawdown within seven days at the nearest existing monitoring well (r = 60 feet). Furthermore, an increase in the discharge rate would only result in excessive drawdown in the pumping well. Similarly, if the actual specific yield is close to 0.005, excessive drawdown would occur after 2 days at a rate of 0.1 gpm, before measurable drawdown would be produced in the nearest existing monitoring well.

The most optimistic scenario uses assumptions that are probably unrealistic. It assumes a discharge rate of 0.08 gpm, no horizontal anisotropy, and a specific yield of 0.005. Under this optimistic scenario, drawdown in MW-016 or MW-018 would probably be adequate for interpretation after seven days of pumping at MW-017.

Therefore, assuming that more realistic conditions prevail, even a seven-day pumping test at the maximum possible rate (0.08 gpm) is not likely to cause enough drawdown at the nearest existing observation well so that specific yield can be quantified. Any drawdown that may occur will be so small that "noise" factors, such as barometric and earth tide effects, will likely preclude reliable analysis. Furthermore, for the analysis to be reliable, once drawdown reaches an observation well, the test must be continued until a distinctive curved drawdown plot is achieved. This requirement could add several more days of pumping before a distinctive drawdown curve is achieved in observation wells that are located 60 or more feet from the pumping well. However, the drawdown should be well-developed at a distance of 20 feet after 3 days of pumping, assuming that the aquifer is in the late stage of delayed drainage. Should the aquifer be in the early stage of delayed drainage after three days, it may be necessary to extend the test several days to get a true specific yield value.

CONCLUSIONS AND RECOMMENDATIONS

While transmissivity of the lacustrine deposits has been estimated from slug test results and the step-discharge test, the specific yield has not. Specific yield is equated to effective porosity, an important parameter in predicting the rate of groundwater movement. The primary purpose of a constant-rate pumping test at the Detroit Arsenal would be to quantify specific yield.

Drawdowns predicted by computer simulations varied greatly depending on the specific yield value used in the simulation. Therefore, much uncertainty remains in

ASEA BROWN BOVERI

the prediction of when measurable drawdown would occur at the nearest monitoring well.

A pumping rate of 0.08 gpm is recommended for a multi-day constant-rate test; a pumping rate of 0.1 gpm may result in dewatering of the pumping well if S_y is closer to 0.005 than to 0.05. Furthermore, to increase the chances of a successful pumping test, we recommend that two piezometers be installed at a distance of 10 and 20 feet from the pumping well. Installation of these piezometers would reduce the duration of the pumping test and greatly increase the chance of collecting data adequate for quantifying specific yield.

Please call me or Hank Andolsek if you have any additional questions.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

Larry Dearborn

Larry Dearborn
Principal Hydrogeologist

cc: J. Cuccaro
G. Reade
D. Bowser (enclosed)
P. Parker - Commander
U.S. Tank - Automotive Research & Development Command
Attn: AMSTA-XEM (Mr. Printes Parker)
6501 E. 11 Mile Rd.
Warren, MI 48397-5000

ASEA BROWN BOVERI

TABLE 1
SUMMARY OF PUMPING TEST SIMULATION

Q(gpm)	t(day)	S_y	K_h/K_v	DRAWDOWN (ft) r=0.33	r=13	r=21	r=33	r=53	r=83
0.1	3	0.05	1	12.17	0.42	0.09	0.01	0.0	0.0
0.1	5	0.05	1	14.06	0.74	0.22	0.03	0.0	0.0
0.1	7	0.05	1	15.54	1.04	0.39	0.08	0.01	0.0
0.1	3	0.05	10	12.39	0.47	0.11	0.01	0.0	0.0
0.1	5	0.05	10	14.52	0.83	0.27	0.05	0.0	0.0
0.1	7	0.05	10	16.88	1.19	0.48	0.11	0.01	0.0
0.1	2	0.005	1	15.29	1.38	0.63	0.19	0.03	0.0
0.1	3	0.005	1	EXCESSIVE DRAWDOWN					
0.1	2	0.005	10	16.26	1.65	0.84	0.30	0.06	0.01
0.1	3	0.005	10	EXCESSIVE DRAWDOWN					
0.08	3	0.05	1	8.77	0.35	0.08	0.01	0.0	0.0
0.08	5	0.05	1	9.75	0.60	0.18	0.03	0.0	0.0
0.08	7	0.05	1	10.53	0.84	0.31	0.06	0.01	0.0
0.08	3	0.05	10	8.90	0.38	0.09	0.01	0.0	0.0
0.08	5	0.05	10	9.97	0.68	0.22	0.04	0.0	0.0
0.08	7	0.05	10	10.87	0.97	0.39	0.09	0.01	0.0
0.08	3	0.005	1	12.56	1.70	0.93	0.37	0.09	0.01
0.08	5	0.005	1	14.16	2.15	1.30	0.62	0.19	0.03
0.08	7	0.005	1	15.75	2.55	1.64	0.87	0.33	0.07
0.08	3	0.005	10	13.41	2.03	1.20	0.56	0.17	0.03
0.08	5	0.005	10	15.47	2.55	1.64	0.88	0.34	0.08
0.08	7	0.005	10	17.70	2.96	2.00	1.17	0.53	0.15

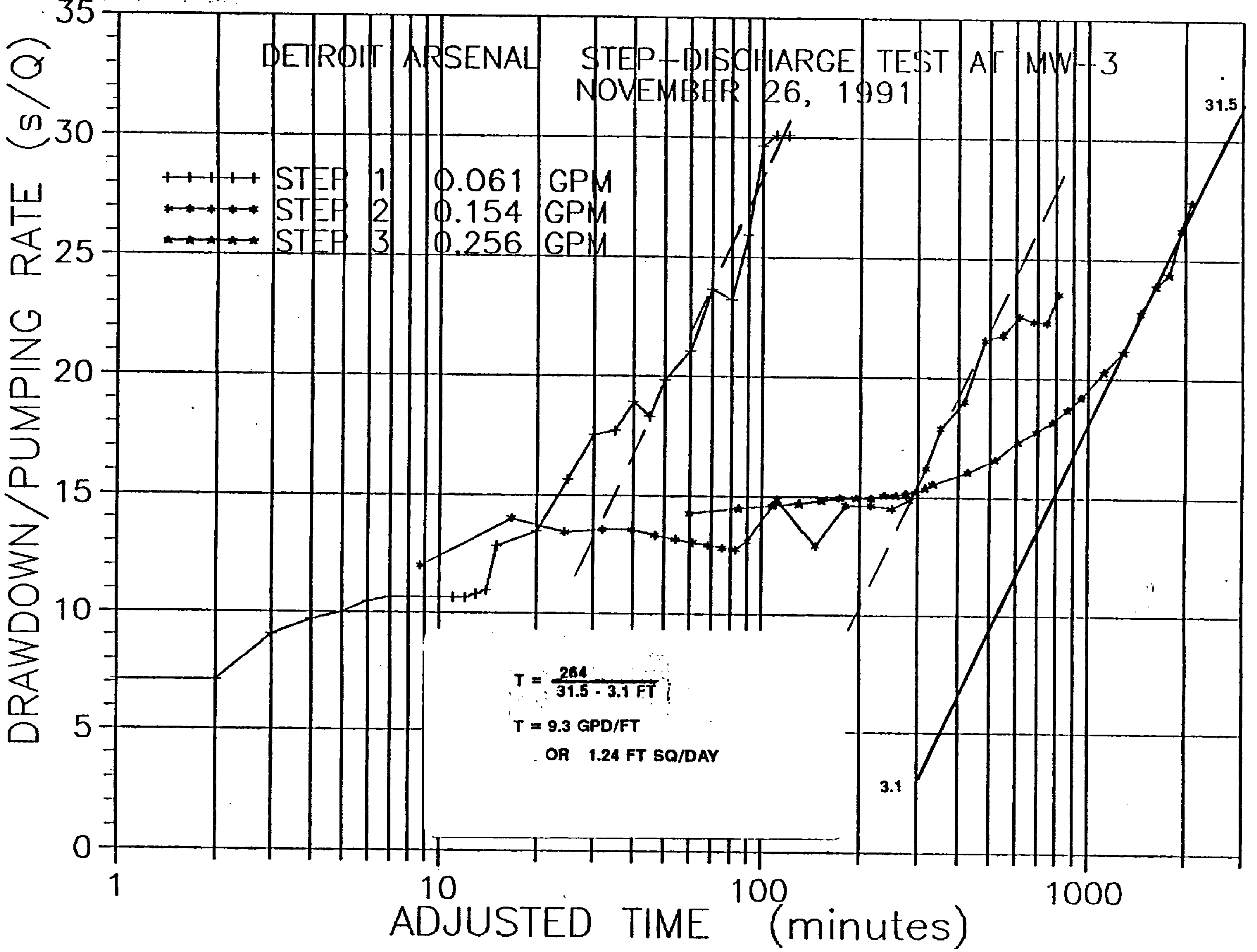


FIGURE 1

BIRSOY AND SUMMERS PLOT FOR MW-3 STEP-DISCHARGE TEST

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.10	0.00	0.00	0.00	0.00	0.00
5.73	0.16	0.00	0.00	0.00	0.00	0.00
9.09	0.25	0.00	0.00	0.00	0.00	0.00
14.40	0.37	0.00	0.00	0.00	0.00	0.00
22.82	0.56	0.00	0.00	0.00	0.00	0.00
36.17	0.83	0.00	0.00	0.00	0.00	0.00
57.33	1.21	0.00	0.00	0.00	0.00	0.00
90.86	1.70	0.00	0.00	0.00	0.00	0.00
144.00	2.32	0.00	0.00	0.00	0.00	0.00
228.22	3.06	0.00	0.00	0.00	0.00	0.00
361.71	3.90	0.00	0.00	0.00	0.00	0.00
573.27	4.79	0.00	0.00	0.00	0.00	0.00
908.58	5.71	0.00	0.00	0.00	0.00	0.00
1440.00	6.61	0.00	0.00	0.00	0.00	0.00
2282.25	7.50	0.00	0.00	0.00	0.00	0.00
3617.12	8.38	0.00	0.00	0.00	0.00	0.00
4320.00	8.77	0.00	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	8.77
3	0.53	7.27
4	0.84	5.93
5	1.33	4.71
6	2.10	3.59
7	3.33	2.57
8	5.28	1.66
9	8.36	0.89
10	13.26	0.35
11	21.01	0.08
12	33.30	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000D-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.[illegible]
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.[illegible]
0.57	0.02	0.00	0.00	0.00	0.00	0.[illegible]
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.[illegible]
3.62	0.10	0.00	0.00	0.00	0.00	0.[illegible]
5.73	0.16	0.00	0.00	0.00	0.00	0.00
9.09	0.25	0.00	0.00	0.00	0.00	0.00
14.40	0.37	0.00	0.00	0.00	0.00	0.[illegible]
22.82	0.56	0.00	0.00	0.00	0.00	0.[illegible]
36.17	0.83	0.00	0.00	0.00	0.00	0.00
57.33	1.21	0.00	0.00	0.00	0.00	0.00
90.86	1.70	0.00	0.00	0.00	0.00	0.[illegible]
144.00	2.32	0.00	0.00	0.00	0.00	0.[illegible]
228.22	3.06	0.00	0.00	0.00	0.00	0.00
361.71	3.90	0.00	0.00	0.00	0.00	0.00
573.27	4.80	0.00	0.00	0.00	0.00	0.[illegible]
908.58	5.73	0.00	0.00	0.00	0.00	0.[illegible]
1440.00	6.65	0.00	0.00	0.00	0.00	0.00
2282.25	7.58	0.00	0.00	0.00	0.00	0.00
3617.12	8.50	0.00	0.00	0.00	0.00	0.[illegible]
4320.00	8.90	0.00	0.00	0.00	0.00	0.[illegible]

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	8.90
3	0.53	7.38
4	0.84	6.03
5	1.33	4.81
6	2.10	3.68
7	3.33	2.65
8	5.28	1.73
9	8.36	0.95
10	13.26	0.38
11	21.01	0.09
12	33.30	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.10	0.00	0.00	0.00	0.00	0.00
5.73	0.16	0.00	0.00	0.00	0.00	0.00
9.09	0.25	0.00	0.00	0.00	0.00	0.00
14.40	0.37	0.00	0.00	0.00	0.00	0.00
22.82	0.56	0.00	0.00	0.00	0.00	0.00
36.17	0.83	0.00	0.00	0.00	0.00	0.00
57.33	1.21	0.00	0.00	0.00	0.00	0.00
90.86	1.70	0.00	0.00	0.00	0.00	0.00
144.00	2.32	0.00	0.00	0.00	0.00	0.00
228.22	3.06	0.00	0.00	0.00	0.00	0.00
361.71	3.90	0.00	0.00	0.00	0.00	0.00
573.27	4.79	0.00	0.00	0.00	0.00	0.00
908.58	5.71	0.00	0.00	0.00	0.00	0.00
1440.00	6.61	0.00	0.00	0.00	0.00	0.00
2282.25	7.50	0.00	0.00	0.00	0.00	0.00
3617.12	8.38	0.00	0.00	0.00	0.00	0.00
5732.74	9.25	0.00	0.00	0.00	0.00	0.00
7200.00	9.75	0.00	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 7200.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	9.75
3	0.53	8.11
4	0.84	6.67
5	1.33	5.38
6	2.10	4.20
7	3.33	3.12
8	5.28	2.13
9	8.36	1.28
10	13.26	0.60
11	21.01	0.18
12	33.30	0.03
13	52.78	0.00

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM =

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.10	0.00	0.00	0.00	0.00	0.00
5.73	0.16	0.00	0.00	0.00	0.00	0.00
9.09	0.25	0.00	0.00	0.00	0.00	0.00
14.40	0.37	0.00	0.00	0.00	0.00	0.00
22.82	0.56	0.00	0.00	0.00	0.00	0.00
36.17	0.83	0.00	0.00	0.00	0.00	0.00
57.33	1.21	0.00	0.00	0.00	0.00	0.00
90.86	1.70	0.00	0.00	0.00	0.00	0.00
144.00	2.32	0.00	0.00	0.00	0.00	0.00
228.22	3.06	0.00	0.00	0.00	0.00	0.00
361.71	3.90	0.00	0.00	0.00	0.00	0.00
573.27	4.80	0.00	0.00	0.00	0.00	0.00
908.58	5.73	0.00	0.00	0.00	0.00	0.00
1440.00	6.65	0.00	0.00	0.00	0.00	0.00
2282.25	7.58	0.00	0.00	0.00	0.00	0.00
3617.12	8.50	0.00	0.00	0.00	0.00	0.00
5732.74	9.45	0.00	0.00	0.00	0.00	0.00
7200.00	9.97	0.00	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 7200.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	9.97
3	0.53	8.30
4	0.84	6.84
5	1.33	5.54
6	2.10	4.34
7	3.33	3.25
8	5.28	2.26
9	8.36	1.38
10	13.26	0.68
11	21.01	0.22
12	33.30	0.04
13	52.78	0.00

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.05	0.00	0.00	0.00	0.00	0.00
2.28	0.08	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.20	0.00	0.00	0.00	0.00	0.00
9.09	0.31	0.00	0.00	0.00	0.00	0.00
14.40	0.47	0.00	0.00	0.00	0.00	0.00
22.82	0.71	0.00	0.00	0.00	0.00	0.00
36.17	1.04	0.00	0.00	0.00	0.00	0.00
57.33	1.51	0.00	0.00	0.00	0.00	0.00
90.86	2.13	0.00	0.00	0.00	0.00	0.00
144.00	2.92	0.00	0.00	0.00	0.00	0.00
228.22	3.87	0.00	0.00	0.00	0.00	0.00
361.71	4.96	0.00	0.00	0.00	0.00	0.00
573.27	6.16	0.00	0.00	0.00	0.00	0.00
908.58	7.43	0.00	0.00	0.00	0.00	0.00
1440.00	8.77	0.00	0.00	0.00	0.00	0.00
2282.25	10.17	0.00	0.00	0.00	0.00	0.00
3617.12	11.69	0.00	0.00	0.00	0.00	0.00
5732.74	13.43	0.00	0.00	0.00	0.00	0.00
9085.79	15.62	0.01	0.00	0.00	0.00	0.00
10800.00	16.88	0.01	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)=10800.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	16.88
3	0.53	12.62
4	0.84	10.03
5	1.33	7.99
6	2.10	6.25
7	3.33	4.73
8	5.28	3.37
9	8.36	2.18
10	13.26	1.19
11	21.01	0.48
12	33.30	0.11
13	52.78	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000D-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.05	0.00	0.00	0.00	0.00	0.00
2.28	0.08	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.20	0.00	0.00	0.00	0.00	0.00
9.09	0.31	0.00	0.00	0.00	0.00	0.00
14.40	0.47	0.00	0.00	0.00	0.00	0.00
22.82	0.71	0.00	0.00	0.00	0.00	0.00
36.17	1.04	0.00	0.00	0.00	0.00	0.00
57.33	1.51	0.00	0.00	0.00	0.00	0.00
90.86	2.13	0.00	0.00	0.00	0.00	0.00
144.00	2.92	0.00	0.00	0.00	0.00	0.00
228.22	3.87	0.00	0.00	0.00	0.00	0.00
361.71	4.95	0.00	0.00	0.00	0.00	0.00
573.27	6.15	0.00	0.00	0.00	0.00	0.00
908.58	7.40	0.00	0.00	0.00	0.00	0.00
1440.00	8.71	0.00	0.00	0.00	0.00	0.00
2282.25	10.06	0.00	0.00	0.00	0.00	0.00
3617.12	11.49	0.00	0.00	0.00	0.00	0.00
5732.74	13.06	0.00	0.00	0.00	0.00	0.00
9085.79	14.90	0.00	0.00	0.00	0.00	0.00
10800.00	15.94	0.01	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)=10800.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	15.94
3	0.53	12.16
4	0.84	9.68
5	1.33	7.69
6	2.10	5.99
7	3.33	4.49
8	5.28	3.16
9	8.36	1.99
10	13.26	1.04
11	21.01	0.39
12	33.30	0.08
13	52.78	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.05	0.00	0.00	0.00	0.00	0.00
2.28	0.09	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.21	0.00	0.00	0.00	0.00	0.00
9.09	0.33	0.00	0.00	0.00	0.00	0.00
14.40	0.51	0.00	0.00	0.00	0.00	0.00
22.82	0.78	0.00	0.00	0.00	0.00	0.00
36.17	1.18	0.00	0.00	0.00	0.00	0.00
57.33	1.76	0.00	0.00	0.00	0.00	0.00
90.86	2.56	0.00	0.00	0.00	0.00	0.00
144.00	3.63	0.00	0.00	0.00	0.00	0.00
228.22	4.99	0.00	0.00	0.00	0.00	0.00
361.71	6.64	0.00	0.00	0.00	0.00	0.00
573.27	8.54	0.00	0.00	0.00	0.00	0.00
908.58	10.69	0.01	0.00	0.00	0.00	0.00
1440.00	13.15	0.02	0.00	0.00	0.00	0.00
2282.25	16.26	0.06	0.00	0.00	0.00	0.00

EXCESSIVE DRAWDOWN

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	16.26
3	0.53	12.55
4	0.84	10.14
5	1.33	8.22
6	2.10	6.58
7	3.33	5.13
8	5.28	3.83
9	8.36	2.67
10	13.26	1.65
11	21.01	0.84
12	33.30	0.30
13	52.78	0.06
14	83.65	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.05	0.00	0.00	0.00	0.00	0.00
2.28	0.09	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.21	0.00	0.00	0.00	0.00	0.00
9.09	0.33	0.00	0.00	0.00	0.00	0.00
14.40	0.51	0.00	0.00	0.00	0.00	0.00
22.82	0.78	0.00	0.00	0.00	0.00	0.00
36.17	1.18	0.00	0.00	0.00	0.00	0.00
57.33	1.76	0.00	0.00	0.00	0.00	0.00
90.86	2.56	0.00	0.00	0.00	0.00	0.00
144.00	3.62	0.00	0.00	0.00	0.00	0.00
228.22	4.97	0.00	0.00	0.00	0.00	0.00
361.71	6.58	0.00	0.00	0.00	0.00	0.00
573.27	8.43	0.00	0.00	0.00	0.00	0.00
908.58	10.46	0.00	0.00	0.00	0.00	0.00
1440.00	12.69	0.01	0.00	0.00	0.00	0.00
2282.25	15.29	0.03	0.00	0.00	0.00	0.00

EXCESSIVE DRAWDOWN

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	15.29
3	0.53	11.98
4	0.84	9.68
5	1.33	7.81
6	2.10	6.19
7	3.33	4.76
8	5.28	3.48
9	8.36	2.35
10	13.26	1.38
11	21.01	0.63
12	33.30	0.19
13	52.78	0.03
14	83.65	0.00

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.11	0.00	0.00	0.00	0.00	0.00
5.73	0.17	0.00	0.00	0.00	0.00	0.00
9.09	0.26	0.00	0.00	0.00	0.00	0.00
14.40	0.41	0.00	0.00	0.00	0.00	0.00
22.82	0.62	0.00	0.00	0.00	0.00	0.00
36.17	0.94	0.00	0.00	0.00	0.00	0.00
57.33	1.40	0.00	0.00	0.00	0.00	0.00
90.86	2.04	0.00	0.00	0.00	0.00	0.00
144.00	2.89	0.00	0.00	0.00	0.00	0.00
228.22	3.95	0.00	0.00	0.00	0.00	0.00
361.71	5.21	0.00	0.00	0.00	0.00	0.00
573.27	6.61	0.00	0.00	0.00	0.00	0.00
908.58	8.09	0.00	0.00	0.00	0.00	0.00
1440.00	9.60	0.02	0.00	0.00	0.00	0.00
2282.25	11.12	0.05	0.00	0.00	0.00	0.00
3617.12	12.69	0.12	0.00	0.00	0.00	0.00
5732.74	14.38	0.25	0.00	0.00	0.00	0.00
7200.00	15.47	0.34	0.01	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 7200.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	15.47
3	0.53	12.50
4	0.84	10.40
5	1.33	8.69
6	2.10	7.20
7	3.33	5.88
8	5.28	4.67
9	8.36	3.56
10	13.26	2.55
11	21.01	1.64
12	33.30	0.88
13	52.78	0.34
14	83.65	0.08
15	132.57	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.11	0.00	0.00	0.00	0.00	0.00
5.73	0.17	0.00	0.00	0.00	0.00	0.00
9.09	0.26	0.00	0.00	0.00	0.00	0.00
14.40	0.41	0.00	0.00	0.00	0.00	0.00
22.82	0.62	0.00	0.00	0.00	0.00	0.00
36.17	0.94	0.00	0.00	0.00	0.00	0.00
57.33	1.40	0.00	0.00	0.00	0.00	0.00
90.86	2.04	0.00	0.00	0.00	0.00	0.00
144.00	2.88	0.00	0.00	0.00	0.00	0.00
228.22	3.93	0.00	0.00	0.00	0.00	0.00
361.71	5.17	0.00	0.00	0.00	0.00	0.00
573.27	6.52	0.00	0.00	0.00	0.00	0.00
908.58	7.92	0.00	0.00	0.00	0.00	0.00
1440.00	9.30	0.01	0.00	0.00	0.00	0.00
2282.25	10.63	0.02	0.00	0.00	0.00	0.00
3617.12	11.94	0.06	0.00	0.00	0.00	0.00
5732.74	13.32	0.13	0.00	0.00	0.00	0.00
7200.00	14.16	0.19	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 7200.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	14.16
3	0.53	11.63
4	0.84	9.70
5	1.33	8.08
6	2.10	6.66
7	3.33	5.37
8	5.28	4.20
9	8.36	3.13
10	13.26	2.15
11	21.01	1.30
12	33.30	0.62
13	52.78	0.19
14	83.65	0.03
15	132.57	0.00

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.05	0.00	0.00	0.00	0.00	0.00
2.28	0.08	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.20	0.00	0.00	0.00	0.00	0.00
9.09	0.31	0.00	0.00	0.00	0.00	0.00
14.40	0.47	0.00	0.00	0.00	0.00	0.00
22.82	0.71	0.00	0.00	0.00	0.00	0.00
36.17	1.04	0.00	0.00	0.00	0.00	0.00
57.33	1.51	0.00	0.00	0.00	0.00	0.00
90.86	2.13	0.00	0.00	0.00	0.00	0.00
144.00	2.92	0.00	0.00	0.00	0.00	0.00
228.22	3.87	0.00	0.00	0.00	0.00	0.00
361.71	4.96	0.00	0.00	0.00	0.00	0.00
573.27	6.16	0.00	0.00	0.00	0.00	0.00
908.58	7.43	0.00	0.00	0.00	0.00	0.00
1440.00	8.77	0.00	0.00	0.00	0.00	0.00
2282.25	10.17	0.00	0.00	0.00	0.00	0.00
3617.12	11.69	0.00	0.00	0.00	0.00	0.00
4320.00	12.39	0.00	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	12.39
3	0.53	9.88
4	0.84	7.87
5	1.33	6.16
6	2.10	4.66
7	3.33	3.32
8	5.28	2.15
9	8.36	1.17
10	13.26	0.47
11	21.01	0.11
12	33.30	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.05	0.00	0.00	0.00	0.00	0.00
2.28	0.08	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.20	0.00	0.00	0.00	0.00	0.00
9.09	0.31	0.00	0.00	0.00	0.00	0.00
14.40	0.47	0.00	0.00	0.00	0.00	0.00
22.82	0.71	0.00	0.00	0.00	0.00	0.00
36.17	1.04	0.00	0.00	0.00	0.00	0.00
57.33	1.51	0.00	0.00	0.00	0.00	0.00
90.86	2.13	0.00	0.00	0.00	0.00	0.00
144.00	2.92	0.00	0.00	0.00	0.00	0.00
228.22	3.87	0.00	0.00	0.00	0.00	0.00
361.71	4.95	0.00	0.00	0.00	0.00	0.00
573.27	6.15	0.00	0.00	0.00	0.00	0.00
908.58	7.40	0.00	0.00	0.00	0.00	0.00
1440.00	8.71	0.00	0.00	0.00	0.00	0.00
2282.25	10.06	0.00	0.00	0.00	0.00	0.00
3617.12	11.49	0.00	0.00	0.00	0.00	0.00
4320.00	12.17	0.00	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	12.17
3	0.53	9.70
4	0.84	7.73
5	1.33	6.04
6	2.10	4.55
7	3.33	3.22
8	5.28	2.06
9	8.36	1.10
10	13.26	0.42
11	21.01	0.09
12	33.30	0.01

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.05	0.00	0.00	0.00	0.00	0.00
2.28	0.08	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.20	0.00	0.00	0.00	0.00	0.00
9.09	0.31	0.00	0.00	0.00	0.00	0.00
14.40	0.47	0.00	0.00	0.00	0.00	0.00
22.82	0.71	0.00	0.00	0.00	0.00	0.00
36.17	1.04	0.00	0.00	0.00	0.00	0.00
57.33	1.51	0.00	0.00	0.00	0.00	0.00
90.86	2.13	0.00	0.00	0.00	0.00	0.00
144.00	2.92	0.00	0.00	0.00	0.00	0.00
228.22	3.87	0.00	0.00	0.00	0.00	0.00
361.71	4.95	0.00	0.00	0.00	0.00	0.00
573.27	6.15	0.00	0.00	0.00	0.00	0.00
908.58	7.40	0.00	0.00	0.00	0.00	0.00
1440.00	8.71	0.00	0.00	0.00	0.00	0.00
2282.25	10.06	0.00	0.00	0.00	0.00	0.00
3617.12	11.49	0.00	0.00	0.00	0.00	0.00
5732.74	13.06	0.00	0.00	0.00	0.00	0.00
7200.00	14.06	0.00	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 7200.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	14.06
3	0.53	11.04
4	0.84	8.81
5	1.33	6.96
6	2.10	5.35
7	3.33	3.93
8	5.28	2.66
9	8.36	1.58
10	13.26	0.74
11	21.01	0.22
12	33.30	0.03
13	52.78	0.00

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.10

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.01	0.00	0.00	0.00	0.00	0.0
0.23	0.01	0.00	0.00	0.00	0.00	0.0
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.0
1.44	0.05	0.00	0.00	0.00	0.00	0.0
2.28	0.08	0.00	0.00	0.00	0.00	0.00
3.62	0.13	0.00	0.00	0.00	0.00	0.00
5.73	0.20	0.00	0.00	0.00	0.00	0.0
9.09	0.31	0.00	0.00	0.00	0.00	0.0
14.40	0.47	0.00	0.00	0.00	0.00	0.00
22.82	0.71	0.00	0.00	0.00	0.00	0.00
36.17	1.04	0.00	0.00	0.00	0.00	0.0
57.33	1.51	0.00	0.00	0.00	0.00	0.0
90.86	2.13	0.00	0.00	0.00	0.00	0.00
144.00	2.92	0.00	0.00	0.00	0.00	0.00
228.22	3.87	0.00	0.00	0.00	0.00	0.0
361.71	4.96	0.00	0.00	0.00	0.00	0.0
573.27	6.16	0.00	0.00	0.00	0.00	0.00
908.58	7.43	0.00	0.00	0.00	0.00	0.00
1440.00	8.77	0.00	0.00	0.00	0.00	0.0
2282.25	10.17	0.00	0.00	0.00	0.00	0.0
3617.12	11.69	0.00	0.00	0.00	0.00	0.00
5732.74	13.43	0.00	0.00	0.00	0.00	0.00
7200.00	14.52	0.00	0.00	0.00	0.00	0.0

TIME AFTER PUMPING STARTED(MIN)= 7200.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	14.52
3	0.53	11.35
4	0.84	9.05
5	1.33	7.17
6	2.10	5.54
7	3.33	4.10
8	5.28	2.82
9	8.36	1.71
10	13.26	0.83
11	21.01	0.27
12	33.30	0.05
13	52.78	0.00

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.10	0.00	0.00	0.00	0.00	0.00
5.73	0.16	0.00	0.00	0.00	0.00	0.00
9.09	0.25	0.00	0.00	0.00	0.00	0.00
14.40	0.37	0.00	0.00	0.00	0.00	0.00
22.82	0.56	0.00	0.00	0.00	0.00	0.00
36.17	0.83	0.00	0.00	0.00	0.00	0.00
57.33	1.21	0.00	0.00	0.00	0.00	0.00
90.86	1.70	0.00	0.00	0.00	0.00	0.00
144.00	2.32	0.00	0.00	0.00	0.00	0.00
228.22	3.06	0.00	0.00	0.00	0.00	0.00
361.71	3.90	0.00	0.00	0.00	0.00	0.00
573.27	4.79	0.00	0.00	0.00	0.00	0.00
908.58	5.71	0.00	0.00	0.00	0.00	0.00
1440.00	6.61	0.00	0.00	0.00	0.00	0.00
2282.25	7.50	0.00	0.00	0.00	0.00	0.00
3617.12	8.38	0.00	0.00	0.00	0.00	0.00
5732.74	9.25	0.00	0.00	0.00	0.00	0.00
9085.79	10.12	0.00	0.00	0.00	0.00	0.00
10800.00	10.53	0.01	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)=10800.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	10.53
3	0.53	8.77
4	0.84	7.26
5	1.33	5.90
6	2.10	4.68
7	3.33	3.55
8	5.28	2.52
9	8.36	1.61
10	13.26	0.84
11	21.01	0.31
12	33.30	0.06
13	52.78	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000-02
WATER TABLE STORATIVITY (DIM)= 0.0500
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.10	0.00	0.00	0.00	0.00	0.00
5.73	0.16	0.00	0.00	0.00	0.00	0.00
9.09	0.25	0.00	0.00	0.00	0.00	0.00
14.40	0.37	0.00	0.00	0.00	0.00	0.00
22.82	0.56	0.00	0.00	0.00	0.00	0.00
36.17	0.83	0.00	0.00	0.00	0.00	0.00
57.33	1.21	0.00	0.00	0.00	0.00	0.00
90.86	1.70	0.00	0.00	0.00	0.00	0.00
144.00	2.32	0.00	0.00	0.00	0.00	0.00
228.22	3.06	0.00	0.00	0.00	0.00	0.00
361.71	3.90	0.00	0.00	0.00	0.00	0.00
573.27	4.80	0.00	0.00	0.00	0.00	0.00
908.58	5.73	0.00	0.00	0.00	0.00	0.00
1440.00	6.65	0.00	0.00	0.00	0.00	0.00
2282.25	7.58	0.00	0.00	0.00	0.00	0.00
3617.12	8.50	0.00	0.00	0.00	0.00	0.00
5732.74	9.45	0.00	0.00	0.00	0.00	0.00
9085.79	10.43	0.01	0.00	0.00	0.00	0.00
10800.00	10.87	0.01	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)=10800.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	10.87
3	0.53	9.06
4	0.84	7.50
5	1.33	6.13
6	2.10	4.88
7	3.33	3.74
8	5.28	2.70
9	8.36	1.76
10	13.26	0.97
11	21.01	0.39
12	33.30	0.09
13	52.78	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.11	0.00	0.00	0.00	0.00	0.00
5.73	0.17	0.00	0.00	0.00	0.00	0.00
9.09	0.26	0.00	0.00	0.00	0.00	0.00
14.40	0.41	0.00	0.00	0.00	0.00	0.00
22.82	0.62	0.00	0.00	0.00	0.00	0.00
36.17	0.94	0.00	0.00	0.00	0.00	0.00
57.33	1.40	0.00	0.00	0.00	0.00	0.00
90.86	2.04	0.00	0.00	0.00	0.00	0.00
144.00	2.88	0.00	0.00	0.00	0.00	0.00
228.22	3.93	0.00	0.00	0.00	0.00	0.00
361.71	5.17	0.00	0.00	0.00	0.00	0.00
573.27	6.52	0.00	0.00	0.00	0.00	0.00
908.58	7.92	0.00	0.00	0.00	0.00	0.00
1440.00	9.30	0.01	0.00	0.00	0.00	0.00
2282.25	10.63	0.02	0.00	0.00	0.00	0.00
3617.12	11.94	0.06	0.00	0.00	0.00	0.00
4320.00	12.56	0.09	0.00	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	12.56
3	0.53	10.46
4	0.84	8.75
5	1.33	7.26
6	2.10	5.93
7	3.33	4.73
8	5.28	3.62
9	8.36	2.61
10	13.26	1.70
11	21.01	0.93
12	33.30	0.37
13	52.78	0.09
14	83.65	0.01

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.00000D-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.0
0.14	0.00	0.00	0.00	0.00	0.00	0.0
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.0
0.57	0.02	0.00	0.00	0.00	0.00	0.0
0.91	0.03	0.00	0.00	0.00	0.00	0.0
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.0
3.62	0.11	0.00	0.00	0.00	0.00	0.0
5.73	0.17	0.00	0.00	0.00	0.00	0.0
9.09	0.26	0.00	0.00	0.00	0.00	0.00
14.40	0.41	0.00	0.00	0.00	0.00	0.0
22.82	0.62	0.00	0.00	0.00	0.00	0.0
36.17	0.94	0.00	0.00	0.00	0.00	0.0
57.33	1.40	0.00	0.00	0.00	0.00	0.00
90.86	2.04	0.00	0.00	0.00	0.00	0.0
144.00	2.89	0.00	0.00	0.00	0.00	0.0
228.22	3.95	0.00	0.00	0.00	0.00	0.0
361.71	5.21	0.00	0.00	0.00	0.00	0.00
573.27	6.61	0.00	0.00	0.00	0.00	0.0
908.58	8.09	0.00	0.00	0.00	0.00	0.0
1440.00	9.60	0.02	0.00	0.00	0.00	0.0
2282.25	11.12	0.05	0.00	0.00	0.00	0.00
3617.12	12.69	0.12	0.00	0.00	0.00	0.0
4320.00	13.41	0.17	0.00	0.00	0.00	0.0

TIME AFTER PUMPING STARTED(MIN)= 4320.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	13.41
3	0.53	11.12
4	0.84	9.31
5	1.33	7.76
6	2.10	6.39
7	3.33	5.15
8	5.28	4.02
9	8.36	2.97
10	13.26	2.03
11	21.01	1.20
12	33.30	0.56
13	52.78	0.17
14	83.65	0.03
15	132.57	0.00

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.460
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

	SELECTED DISTANCES (FT)					
TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.11	0.00	0.00	0.00	0.00	0.00
5.73	0.17	0.00	0.00	0.00	0.00	0.00
9.09	0.26	0.00	0.00	0.00	0.00	0.00
14.40	0.41	0.00	0.00	0.00	0.00	0.00
22.82	0.62	0.00	0.00	0.00	0.00	0.00
36.17	0.94	0.00	0.00	0.00	0.00	0.00
57.33	1.40	0.00	0.00	0.00	0.00	0.00
90.86	2.04	0.00	0.00	0.00	0.00	0.00
144.00	2.88	0.00	0.00	0.00	0.00	0.00
228.22	3.93	0.00	0.00	0.00	0.00	0.00
361.71	5.17	0.00	0.00	0.00	0.00	0.00
573.27	6.52	0.00	0.00	0.00	0.00	0.00
908.58	7.92	0.00	0.00	0.00	0.00	0.00
1440.00	9.30	0.01	0.00	0.00	0.00	0.00
2282.25	10.63	0.02	0.00	0.00	0.00	0.00
3617.12	11.94	0.06	0.00	0.00	0.00	0.00
5732.74	13.32	0.13	0.00	0.00	0.00	0.00
9085.79	14.92	0.26	0.00	0.00	0.00	0.00
10800.00	15.75	0.33	0.01	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)=10800.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	15.75
3	0.53	12.65
4	0.84	10.50
5	1.33	8.76
6	2.10	7.25
7	3.33	5.91
8	5.28	4.69
9	8.36	3.57
10	13.26	2.55
11	21.01	1.64
12	33.30	0.87
13	52.78	0.33
14	83.65	0.07
15	132.57	0.01

DATA BASE:

DATA BASE:

AQUIFER HORIZ. HYDR. COND. (GPD/SQ FT)= 0.46
AQUIFER VERT. HYDR. COND. (GPD/SQ FT)= 0.046
AQUIFER THICKNESS (FT)= 20.00
ARTESIAN AQUIFER STORATIVITY (DIM)= 5.0000D-03
WATER TABLE STORATIVITY (DIM)= 0.0050
PRODUCT. WELL EFFECTIVE RADIUS (FT)= 0.333
TOP OF AQUIFER DEPTH (FT)= 0.00
BASE OF AQUIFER DEPTH (FT)= 20.00
INITIAL WATER LEVEL DEPTH (FT)= 0.00
INFINITE AQUIFER SYSTEM

COMPUTATION RESULTS:

PRODUCTION WELL DISCHARGE RATE (GPM)= 0.08

TIME-DRAWDOWN OR WATER LEVEL VALUES (FT)

SELECTED DISTANCES (FT)

TIME(MIN)	0.33	52.78	132.57	333.00	836.46	2101.09
0.14	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.01	0.00	0.00	0.00	0.00	0.00
0.36	0.01	0.00	0.00	0.00	0.00	0.00
0.57	0.02	0.00	0.00	0.00	0.00	0.00
0.91	0.03	0.00	0.00	0.00	0.00	0.00
1.44	0.04	0.00	0.00	0.00	0.00	0.00
2.28	0.07	0.00	0.00	0.00	0.00	0.00
3.62	0.11	0.00	0.00	0.00	0.00	0.00
5.73	0.17	0.00	0.00	0.00	0.00	0.00
9.09	0.26	0.00	0.00	0.00	0.00	0.00
14.40	0.41	0.00	0.00	0.00	0.00	0.00
22.82	0.62	0.00	0.00	0.00	0.00	0.00
36.17	0.94	0.00	0.00	0.00	0.00	0.00
57.33	1.40	0.00	0.00	0.00	0.00	0.00
90.86	2.04	0.00	0.00	0.00	0.00	0.00
144.00	2.89	0.00	0.00	0.00	0.00	0.00
228.22	3.95	0.00	0.00	0.00	0.00	0.00
361.71	5.21	0.00	0.00	0.00	0.00	0.00
573.27	6.61	0.00	0.00	0.00	0.00	0.00
908.58	8.09	0.00	0.00	0.00	0.00	0.00
1440.00	9.60	0.02	0.00	0.00	0.00	0.00
2282.25	11.12	0.05	0.00	0.00	0.00	0.00
3617.12	12.69	0.12	0.00	0.00	0.00	0.00
5732.74	14.38	0.25	0.00	0.00	0.00	0.00
9085.79	16.44	0.43	0.01	0.00	0.00	0.00
10800.00	17.70	0.53	0.02	0.00	0.00	0.00

TIME AFTER PUMPING STARTED(MIN)=10800.00

DISTANCE-DRAWDOWN OR WATER LEVEL VALUES AT END OF PUMPING PERIOD

NODE NO	RADIUS(FT)	DRAWDOWN OR WATER LEVEL (FT)
2	0.33	17.70
3	0.53	13.61
4	0.84	11.23
5	1.33	9.38
6	2.10	7.81
7	3.33	6.42
8	5.28	5.17
9	8.36	4.02
10	13.26	2.96
11	21.01	2.00
12	33.30	1.17
13	52.78	0.53
14	83.65	0.15
15	132.57	0.02
16	210.11	0.00

APPENDIX B

LETTER REPORT: CONSTANT-DISCHARGE TESTS

ABB
ASEA BROWN BOVERI

9302048.WP/CR410
07027-02

February 5, 1993

Mr. James Zeisloft
USATHAMA
CETHA-IR-A
Building 4480
Aberdeen Proving Grounds, MD 21010-5401

Subject: Constant-Discharge Pumping Tests
Detroit Arsenal, Warren, Michigan

Dear Mr. Zeisloft:

ABB Environmental Services, Inc., has completed the constant-discharge groundwater pumping tests at the Detroit Arsenal in Warren, Michigan. Two separate pumping tests were conducted: the first at well MW003 and the second at well MW017. This letter provides a summary of the field methodology.

CONSTANT-DISCHARGE TEST AT MW003

Pressure transducers connected to In-Situ Hermit electronic data loggers were installed in well MW010 and piezometers PZ001 and PZ002 on 16 December 1992 (three days prior to the start of the pumping test). These water level data will be used to assess natural fluctuations in groundwater levels prior to the pumping test. A barometric pressure probe was also installed at well MW010 to provide the data needed to evaluate the effect of barometric pressure changes on the groundwater levels.

The constant-discharge pumping test was initiated on 19 December 1992. Groundwater was extracted from well MW003 at an average rate of 0.08 gallons per minute (gpm) using a Grundfos Rediflo2 submersible pump. Water was collected in a steel drum and then discharged to the sanitary sewer via a nearby manhole. Periodic measurements of the discharge rate were made volumetrically with a graduated cylinder and a stop watch.

During pumping, water levels in piezometers PZ001 and PZ002 were measured and recorded with the previously installed In-Situ Hermit electronic data logger and pressure transducers. Manual measurements were made every few hours with an electronic water level meter to confirm the automatically recorded data. The water level in the pumping well, MW003, was measured with the electronic water level meter at intervals spaced to permit graphing of the data.

Water level and barometric pressure data were also collected at well MW010 using the In-Situ Hermit electronic data logger and pressure transducers installed on 16 December. The data collected at MW010 will be used to assess natural variations in the water levels during the test. Manual water level measurements were collected at MW010 two to four times daily.

ABB Environmental Services of Michigan, Inc.

39255 Country Club Drive B-25
P. O. Box 2055
Farmington Hills, Michigan 48333-2055

Telephone:
(313) 489-8040

Fax
(313) 489-8048

The pump was shut off on 21 December after approximately 48 hours of pumping. At that time, water levels in the pumping well and adjacent piezometers had been stable for approximately 24 hours. Water level recovery was measured for one day using the instrumentation described above. Also, water levels were measured in the seventeen monitoring wells and four piezometers on 19 December, just prior to initiation of pumping, and on 21 December, just prior to pump shut off.

CONSTANT-DISCHARGE TEST AT MW017

To evaluate natural fluctuations in water levels, pressure transducers connected to In-Situ Hermit electronic data loggers were installed in well MW013 and piezometers PZ003 and PZ004 on 31 December 1992. A barometric pressure probe was also installed at well MW013.

The constant-discharge pumping test was scheduled to start on 4 January 1993; however, the test was delayed because rains were causing groundwater levels to rise at a rate significant enough to interfere with drawdown measurements. On 8 January, water level data from well MW013 and piezometers PZ003 and PZ004 were downloaded from the data loggers. Hydrographs constructed from the data indicated that the water levels had stabilized; therefore, the test was initiated on 9 January.

Groundwater was extracted from well MW017 using a Grundfos Rediflo2 submersible pump. Due to the rapid decline of the water level, the rate fluctuated between 0.07 and 0.09 gpm and had to be adjusted frequently. Water was collected in a pail and then discharged to the sanitary sewer via a nearby manhole. Periodic measurements of the discharge rate were made volumetrically with a graduated cylinder and a stop watch.

During pumping, water levels in piezometers PZ003 and PZ004 were measured and recorded with the previously installed In-Situ Hermit electronic data logger and pressure transducers. Manual measurements were made with an electronic water level meter to confirm the automatically recorded data. The water level in the pumping well, MW017, was measured with an electronic water level meter at intervals spaced to permit graphing of the data. Water level and barometric pressure data were also collected at well MW013 using the In-Situ Hermit electronic data logger and pressure transducers installed on 31 December.

The pump was shut off on 9 January after approximately 5 hours of pumping. At that time, the water level in the pumping well had declined more than 16 feet. Because a water column of less than 5 feet remained in the well, it was difficult to maintain a constant discharge rate.

Prior to pump shut off, the pressure transducer in PZ004 was removed and installed in the pumping well (MW017) to monitor the water level recovery. No drawdown had been observed in either PZ003 or PZ004. Manual measurements of the water levels were made twice daily with an electronic water level meter between 11 January and 15 January, and once a day on 18, 20, and 22 January. On 13 January, the pressure transducers and data logger were removed from MW017 and PZ003. The pressure transducer, barometric probe, and data logger were removed from MW013 on 15 January.

Upon the completion of each test, the submersible pump was decontaminated by pumping deionized water through the pump and tubing. Additionally, the outside casing of the pump, the hose, the pressure transducers and associated cables were rinsed with deionized water. The electronic water level meter was rinsed with deionized water before each water level measurement.

The time-drawdown and recovery data obtained from these tests will be evaluated to estimate the hydraulic characteristics of the aquifer (i.e., the transmissivity, hydraulic conductivity, and specific yield). These data will be used along with the hydraulic gradient to estimate the groundwater seepage rates. Please call me or Larry Dearborn in our Portland Office if you have any questions on the field activities or data evaluation.

Respectfully,

ABB ENVIRONMENTAL SERVICES INC.

Greta Reade

Greta Reade
Project Manager

GDR/bkl

RAW DATA

PUMPING TEST AT MW003

MW-3 MANUAL DRAWDOWN MEASUREMENTS
TEST BEGAN DECEMBER 19, 1992: 1220 HRS

REAL TIME	ELAPSED TIME (MIN)	DISTANCE TO WL (FT)	DRAWDOWN (FT)	PUMPING RATE (GPM)	COMMENTS
	0.0	4.58	0.00		
	0.5	5.11	0.53		
1221	1.0	5.67	1.09		
	1.5	5.99	1.41		
1222	2.0	6.46	1.88	0.32	
	2.5	6.89	2.31		
1223	3.0	7.10	2.52		
	3.5	7.24	2.66		
1224	4.0	7.29	2.71		
	4.5	7.28	2.70		
1225	5.0	7.21	2.63	0.13	
1226	6.0	7.10	2.52		
1227	7.0	6.99	2.41		
1228	8.0	6.87	2.29		
1229	9.0	6.76	2.18		
1230	10.0	6.70	2.12	0.08	
1231	11.0	6.57	1.99		
1232	12.0	6.48	1.90		
1233	13.0	6.44	1.86		
1234	14.0	6.39	1.81		
1235	15.0	6.35	1.77		
1240	20.0	6.23	1.65	0.09	
1245	25.0	6.12	1.54		
1250	30.0	6.06	1.48	0.08	
1255	35.0	6.01	1.43		
1300	40.0	5.99	1.41	0.07	ADJUSTED TO 0.08
1305	45.0	5.99	1.41		
1310	50.0	6.00	1.42	0.08	
1315	55.0	6.01	1.43		
1320	60.0	6.01	1.43	0.08	
1330	70.0	5.99	1.41		
1340	80.0	5.98	1.40	0.08	
1350	90.0	6.02	1.44	0.07	ADJUSTED TO 0.08
1400	100.0	6.02	1.44		
1410	110.0	6.02	1.44	0.07	ADJUSTED TO 0.08
1420	120.0	6.12	1.54	0.08	
1440	140.0	6.21	1.63	0.08	
1500	160.0	6.26	1.68	0.08	
1520	180.0	6.27	1.69	0.08	
1540	200.0	6.30	1.72	0.08	

MW-3 MANUAL DRAWDOWN MEASUREMENTS
TEST BEGAN DECEMBER 19, 1992: 1220 HRS

REAL TIME	ELAPSED TIME (MIN)	DISTANCE TO WL (FT)	DRAWDOWN (FT)	PUMPING RATE (GPM)	COMMENTS
1600	220.0	6.32	1.74	0.08	
1620	240.0	6.32	1.74	0.08	
1720	300.0	6.33	1.75	0.08	
1820	360.0	6.37	1.79	0.08	
1920	420.0	6.37	1.79	0.08	
2020	480.0	6.39	1.81	0.08	
2120	540.0	6.41	1.83	0.08	
2220	600.0	6.40	1.82	0.08	
2320	660.0	6.36	1.78	0.08	
0020	720.0	6.38	1.80	0.08	
0120	780.0	6.39	1.81	0.09	ADJUSTED TO 0.08
0220	840.0	6.41	1.83	0.08	
0320	900.0	6.46	1.88	0.08	
0420	960.0	6.48	1.90	0.08	
0520	1020.0	6.52	1.94	0.08	
0620	1080.0	6.54	1.96	0.08	
0720	1140.0	6.54	1.96	0.08	
0920	1260.0	6.57	1.99		
1120	1380.0	6.61	2.03	0.08	
1320	1500.0	6.52	1.94	0.08	
1520	1620.0	6.50	1.92	0.08	
1720	1740.0	6.50	1.92	0.08	
1920	1860.0	6.49	1.91	0.08	
2120	1980.0	6.48	1.90	0.08	
0000	2140.0	6.52	1.94	0.08	
0200	2260.0	6.50	1.92		
0400	2380.0	6.49	1.91		
0600	2500.0	6.48	1.90		
0800	2620.0	6.44	1.86		
1100	2800.0	6.42	1.84		

MW–3 MANUAL DRAWDOWN MEASUREMENTS
RECOVERY BEGAN DECEMBER 21, 1992: 1238 HRS

REAL TIME	ELAPSED TIME (t) (MIN)	TIME SINCE PUMP OFF (t') (MIN)	t/t'	DISTANCE TO WL (x) (FT)	RESIDUAL DRAWDOWN (x–xo)(FT)
1238	2898.00	0.00		6.51	1.92
	2898.50	0.50	5797.00	6.09	1.50
1239	2899.00	1.00	2899.00	5.75	1.16
	2899.25	1.25	2319.40	5.65	1.06
	2899.50	1.50	1933.00	5.63	1.04
	2899.75	1.75	1657.00	5.63	1.04
1240	2900.00	2.00	1450.00	5.63	1.04
1241	2901.00	3.00	967.00	5.63	1.04
1242	2902.00	4.00	725.50	5.62	1.03
1243	2903.00	5.00	580.60	5.59	1.00
1244	2904.00	6.00	484.00	5.57	0.98
1245	2905.00	7.00	415.00	5.56	0.97
1246	2906.00	8.00	363.25	5.54	0.95
1247	2907.00	9.00	323.00	5.51	0.92
1248	2908.00	10.00	290.80	5.50	0.91
1253	2913.00	15.00	194.20	5.41	0.82
1258	2918.00	20.00	145.90	5.34	0.75
1304	2924.00	26.00	112.46	5.28	0.69
1308	2928.00	30.00	97.60	5.25	0.66
1318	2938.00	40.00	73.45	5.18	0.59
1328	2948.00	50.00	58.96	5.12	0.53
1338	2958.00	60.00	49.30	5.07	0.48
1540	3080.00	182.00	16.92	4.90	0.31
0912	4132.00	1234.00	3.35	4.78	0.19

NOTE: Xo = 4.59 FT

RAW DATA

PZ001 AND BAROMETRIC PROBE

HRMT-10.PRN UNIT 1, TEST 1
SE1000B
Environmental Logger
12/23 16:30

Unit# 00480 Test# 0

INPUT 1: Level (F) TOC

P2001 background.

Reference 4.77
Scale factor 10.02
Offset 0.10

Step# 0 12/16 15:38

Elapsed Time	Value
0	4.77
15	4.78
30	4.79
45	4.8
60	4.8
75	4.81
90	4.81
105	4.81
120	4.81
135	4.81
150	4.81
165	4.81
180	4.81
195	4.81
210	4.81
225	4.81
240	4.81
255	4.81
270	4.81
285	4.81
300	4.81
315	4.81
330	4.81
345	4.8
360	4.81
375	4.8
390	4.8
405	4.8
420	4.8
435	4.8
450	4.8
465	4.8
480	4.8
495	4.8
510	4.79
525	4.79

HRMT-11.PRN UNIT 1, TEST 2
SE1000B
Environmental Logger
12/23 16:34

Unit# 00480 Test# 1

INPUT 1: Level (F) TOC

P2001 drawdown

Reference 4.77
Scale factor 10.02
Offset 0.01

Step# 0 12/19 12:20

Elapsed Time	Value
0	4.77
0.0033	4.77
0.0066	4.77
0.0099	4.77
0.0133	4.77
0.0166	4.77
0.02	4.77
0.0233	4.77
0.0266	4.77
0.03	4.77
0.0333	4.77
0.05	4.77
0.0666	4.77
0.0833	4.77
0.1	4.77
0.1166	4.77
0.1333	4.77
0.15	4.77
0.1666	4.77
0.1833	4.77
0.2	4.77
0.2166	4.77
0.2333	4.77
0.25	4.77
0.2666	4.77
0.2833	4.77
0.3	4.77
0.3166	4.77
0.3333	4.77
0.4167	4.77
0.5	4.77
0.5833	4.77
0.6667	4.77
0.75	4.77
0.8333	4.77
0.9167	4.77

HRMT-12.PRN UNIT 1, TEST 3
SE1000B
Environmental Logger
12/23 16:40

Unit# 00480 Test# 2

INPUT 1: Level (F) TOC

P2001 recovery

Reference 4.77
Scale factor 10.02
Offset 0.01

Step# 0 12/21 12:37

Elapsed Time	Value
0	5.55
0.0033	5.55
0.0066	5.55
0.0099	5.55
0.0133	5.55
0.0166	5.55
0.02	5.55
0.0233	5.55
0.0266	5.55
0.03	5.55
0.0333	5.55
0.05	5.55
0.0666	5.55
0.0833	5.55
0.1	5.55
0.1166	5.55
0.1333	5.55
0.15	5.55
0.1666	5.55
0.1833	5.55
0.2	5.55
0.2166	5.55
0.2333	5.55
0.25	5.55
0.2666	5.55
0.2833	5.55
0.3	5.55
0.3166	5.55
0.3333	5.55
0.4167	5.55
0.5	5.55
0.5833	5.55
0.6667	5.55
0.75	5.55
0.8333	5.55
0.9167	5.55

HRMT-20.PRN UNIT 2, TEST 1
SE1000C
Environmental Logger
12/23 16:23

Unit# 00001 Test 0

INPUT 1: Function

barometric probe

Linearity 0.000
Scale factor 15.810
Offset 0.300
Delay mSEC 50.000

Step 0 12/16 15:38:56

Elapsed Time	INPUT 1
0	14.383
15	14.385
30	14.387
45	14.389
60	14.389
75	14.389
90	14.389
105	14.391
120	14.389
135	14.389
150	14.389
165	14.394
180	14.391
195	14.389
210	14.391
225	14.394
240	14.391
255	14.389
270	14.387
285	14.381
300	14.381
315	14.381
330	14.378
345	14.381
360	14.383
375	14.374
390	14.381
405	14.383
420	14.381
435	14.376
450	14.374
465	14.374
480	14.376
495	14.378
510	14.37

HRMT-10.PRN UNIT 1, TEST 1 SE1000B		HRMT-11.PRN UNIT 1, TEST 2 SE1000B		HRMT-12.PRN UNIT 1, TEST 3 SE1000B		HRMT-20.PRN UNIT 2, TEST 1 SE1000C	
540	4.79	1	4.77	1	5.55	525	14.366
555	4.79	1.0833	4.77	1.0833	5.55	540	14.357
570	4.78	1.1667	4.77	1.1667	5.55	555	14.359
585	4.78	1.25	4.77	1.25	5.55	570	14.348
600	4.79	1.3333	4.77	1.3333	5.55	585	14.35
615	4.79	1.4166	4.77	1.4166	5.55	600	14.366
630	4.79	1.5	4.77	1.5	5.55	615	14.368
645	4.79	1.5833	4.78	1.5833	5.55	630	14.357
660	4.79	1.6667	4.78	1.6667	5.55	645	14.366
675	4.79	1.75	4.78	1.75	5.55	660	14.361
690	4.79	1.8333	4.78	1.8333	5.55	675	14.366
705	4.79	1.9167	4.78	1.9167	5.55	690	14.368
720	4.78	2	4.77	2	5.55	705	14.361
735	4.77	2.5	4.78	2.5	5.55	720	14.346
750	4.77	3	4.78	3	5.54	735	14.346
765	4.77	3.5	4.78	3.5	5.54	750	14.34
780	4.77	4	4.79	4	5.54	765	14.346
795	4.77	4.5	4.8	4.5	5.53	780	14.337
810	4.77	5	4.81	5	5.53	795	14.337
825	4.77	5.5	4.82	5.5	5.52	810	14.337
840	4.77	6	4.83	6	5.52	825	14.335
855	4.77	6.5	4.84	6.5	5.52	840	14.335
870	4.77	7	4.85	7	5.51	855	14.337
885	4.76	7.5	4.87	7.5	5.51	870	14.333
900	4.76	8	4.89	8	5.5	885	14.329
915	4.77	8.5	4.89	8.5	5.5	900	14.329
930	4.77	9	4.9	9	5.49	915	14.335
945	4.76	9.5	4.91	9.5	5.49	930	14.335
960	4.76	10	4.93	10	5.48	945	14.331
975	4.76	12	4.97	12	5.46	960	14.331
990	4.76	14	5	14	5.45	975	14.327
1005	4.77	16	5.03	16	5.43	990	14.331
1020	4.76	18	5.05	18	5.41	1005	14.331
1035	4.77	20	5.07	20	5.4	1020	14.331
1050	4.77	22	5.08	22	5.39	1035	14.335
1065	4.77	24	5.1	24	5.37	1050	14.335
1080	4.77	26	5.1	26	5.36	1065	14.335
1095	4.77	28	5.1	28	5.35	1080	14.335
1110	4.77	30	5.11	30	5.34	1095	14.337
1125	4.77	32	5.12	32	5.33	1110	14.34
1140	4.77	34	5.12	34	5.32	1125	14.34
1155	4.77	36	5.12	36	5.31	1140	14.342
1170	4.76	38	5.13	38	5.3	1155	14.34
1185	4.76	40	5.13	40	5.29	1170	14.34
1200	4.76	42	5.14	42	5.28	1185	14.335
1215	4.76	44	5.14	44	5.27	1200	14.333
1230	4.76	46	5.14	46	5.27	1215	14.335
1245	4.76	48	5.15	48	5.26	1230	14.335
1260	4.76	50	5.15	50	5.25	1245	14.333

HRMT−10.PRN UNIT 1, TEST 1 SE1000B		HRMT−11.PRN UNIT 1, TEST 2 SE1000B		HRMT−12.PRN UNIT 1, TEST 3 SE1000B		HRMT−20.PRN UNIT 2, TEST 1 SE1000C	
1275	4.76	52	5.15	52	5.24	1260	14.333
1290	4.76	54	5.15	54	5.24	1275	14.333
1305	4.76	56	5.16	56	5.23	1290	14.333
1320	4.76	58	5.16	58	5.23	1305	14.331
1335	4.76	60	5.16	60	5.22	1320	14.333
1350	4.76	62	5.16	62	5.21	1335	14.335
1365	4.76	64	5.17	64	5.21	1350	14.34
1380	4.77	66	5.17	66	5.2	1365	14.34
1395	4.77	68	5.17	68	5.2	1380	14.344
1410	4.77	70	5.17	70	5.19	1395	14.346
1425	4.77	72	5.18	72	5.19	1410	14.348
1440	4.77	74	5.17	74	5.18	1425	14.35
1455	4.78	76	5.17	76	5.17	1440	14.353
1470	4.78	78	5.18	78	5.17	1455	14.355
1485	4.78	80	5.18	80	5.16	1470	14.359
1500	4.79	82	5.19	82	5.16	1485	14.361
1515	4.79	84	5.19	84	5.15	1500	14.366
1530	4.79	86	5.19	86	5.14	1515	14.37
1545	4.8	88	5.19	88	5.15	1530	14.372
1560	4.8	90	5.19	90	5.14	1545	14.376
1575	4.8	92	5.2	92	5.14	1560	14.378
1590	4.81	94	5.2	94	5.14	1575	14.383
1605	4.81	96	5.2	96	5.14	1590	14.387
1620	4.81	98	5.2	98	5.13	1605	14.391
1635	4.82	100	5.21	100	5.13	1620	14.391
1650	4.82	110	5.22	110	5.11	1635	14.394
1665	4.82	120	5.23	120	5.1	1650	14.398
1680	4.82	130	5.25	130	5.09	1665	14.4
1695	4.83	140	5.27	140	5.08	1680	14.404
1710	4.83	150	5.28	150	5.07	1695	14.407
1725	4.83	160	5.29	160	5.06	1710	14.404
1740	4.83	170	5.31	170	5.06	1725	14.409
1755	4.83	180	5.32	180	5.05	1740	14.411
1770	4.83	190	5.32	190	5.05	1755	14.417
1785	4.84	200	5.33	200	5.04	1770	14.42
1800	4.84	210	5.34	210	5.03	1785	14.424
1815	4.84	220	5.35	220	5.03	1800	14.426
1830	4.84	230	5.36	230	5.02	1815	14.426
1845	4.84	240	5.36	240	5.02	1830	14.426
1860	4.84	250	5.36	250	5.02	1845	14.426
1875	4.85	260	5.37	260	5.02	1860	14.43
1890	4.85	270	5.37	270	5.01	1875	14.433
1905	4.85	280	5.38	280	5.01	1890	14.437
1920	4.85	290	5.38	290	5	1905	14.437
1935	4.85	300	5.38	300	4.99	1920	14.437
1950	4.86	310	5.39	310	4.99	1935	14.441
1965	4.86	320	5.39	320	4.98	1950	14.443
1980	4.86	330	5.39	330	4.98	1965	14.446
1995	4.86	340	5.39	340	4.98	1980	14.448

HRMT-10.PRN UNIT 1, TEST 1 SE1000B		HRMT-11.PRN UNIT 1, TEST 2 SE1000B		HRMT-12.PRN UNIT 1, TEST 3 SE1000B		HRMT-20.PRN UNIT 2, TEST 1 SE1000C	
2010	4.86	350	5.4	350	4.97	1995	14.448
2025	4.87	360	5.4	360	4.96	2010	14.45
2040	4.87	370	5.4	370	4.96	2025	14.456
2055	4.87	380	5.41	380	4.96	2040	14.456
2070	4.88	390	5.41	390	4.96	2055	14.459
2085	4.88	400	5.42	400	4.95	2070	14.465
2100	4.88	410	5.42	410	4.95	2085	14.469
2115	4.88	420	5.42	420	4.95	2100	14.469
2130	4.88	430	5.42	430	4.95	2115	14.472
2145	4.88	440	5.42	440	4.95	2130	14.476
2160	4.88	450	5.43	450	4.95	2145	14.478
2175	4.88	460	5.43	460	4.94	2160	14.476
2190	4.88	470	5.43	470	4.94	2175	14.476
2205	4.89	480	5.43	480	4.94	2190	14.478
2220	4.89	490	5.43	490	4.94	2205	14.485
2235	4.89	500	5.43	500	4.94	2220	14.485
2250	4.89	510	5.43	510	4.94	2235	14.489
2265	4.89	520	5.44	520	4.94	2250	14.489
2280	4.89	530	5.44	530	4.94	2265	14.491
2295	4.89	540	5.44	540	4.93	2280	14.493
2310	4.9	550	5.44	550	4.93	2295	14.498
2325	4.9	560	5.44	560	4.93	2310	14.5
2340	4.9	570	5.44	570	4.93	2325	14.502
2355	4.9	580	5.44	580	4.93	2340	14.504
2370	4.91	590	5.44	590	4.93	2355	14.506
2385	4.91	600	5.43	600	4.93	2370	14.511
2400	4.91	610	5.43	610	4.93	2385	14.513
2415	4.91	620	5.43	620	4.93	2400	14.517
2430	4.91	630	5.43	630	4.93	2415	14.519
2445	4.91	640	5.43	640	4.93	2430	14.521
2460	4.92	650	5.43	650	4.93	2445	14.524
2475	4.92	660	5.43	660	4.93	2460	14.528
2490	4.92	670	5.43	670	4.93	2475	14.53
2505	4.92	680	5.43	680	4.93	2490	14.53
2520	4.92	690	5.43	690	4.93	2505	14.532
2535	4.92	700	5.43	700	4.93	2520	14.534
2550	4.92	710	5.43	710	4.93	2535	14.539
2565	4.92	720	5.43	720	4.93	2550	14.541
2580	4.92	730	5.43	730	4.93	2565	14.543
2595	4.91	740	5.43	740	4.93	2580	14.543
2610	4.91	750	5.43	750	4.93	2595	14.541
2625	4.91	760	5.43	760	4.93	2610	14.539
2640	4.9	770	5.43	770	4.93	2625	14.534
2655	4.9	780	5.43	780	4.93	2640	14.53
2670	4.89	790	5.43	790	4.93	2655	14.528
2685	4.89	800	5.44	800	4.93	2670	14.524
2700	4.88	810	5.44	810	4.94	2685	14.519
2715	4.88	820	5.45	820	4.94	2700	14.519
2730	4.87	830	5.45	830	4.94	2715	14.517

HRMT−10.PRN UNIT 1, TEST 1
SE1000B

2745	4.87
2760	4.87
2775	4.87
2790	4.87
2805	4.88
2820	4.87
2835	4.87
2850	4.88
2865	4.87
2880	4.87
2895	4.87
2910	4.87
2925	4.88
2940	4.85
2955	4.86
2970	4.89
2985	5
3000	5
3015	4.96
3030	4.94
3045	4.92
3060	4.9
3075	4.89
3090	4.89
3105	4.88
3120	4.88
3135	4.87
3150	4.87
3165	4.86
3180	4.86
3195	4.86
3210	4.85
3225	4.85
3240	4.85
3255	4.84
3270	4.84
3285	4.84
3300	4.84
3315	4.84
3330	4.83
3345	4.83
3360	4.83
3375	4.82
3390	4.82
3405	4.82
3420	4.81
3435	4.81
3450	4.81
3465	4.81

HRMT−11.PRN UNIT 1, TEST 2
SE1000B

840	5.45
850	5.46
860	5.46
870	5.47
880	5.47
890	5.48
900	5.48
910	5.48
920	5.48
930	5.48
940	5.49
950	5.49
960	5.49
970	5.49
980	5.49
990	5.49
1000	5.49
1020	5.5
1040	5.51
1060	5.52
1080	5.53
1100	5.53
1120	5.54
1140	5.55
1160	5.56
1180	5.56
1200	5.57
1220	5.58
1240	5.58
1260	5.58
1280	5.59
1300	5.6
1320	5.59
1340	5.61
1360	5.6
1380	5.61
1400	5.61
1420	5.6
1440	5.6
1460	5.59
1480	5.59
1500	5.58
1520	5.59
1540	5.59
1560	5.59
1580	5.59
1600	5.59
1620	5.6
1640	5.6

HRMT−12.PRN UNIT 1, TEST 3
SE1000B

840	4.94
850	4.94
860	4.95
870	4.95
880	4.95
890	4.95
900	4.95
910	4.95
920	4.95
930	4.95
940	4.95
950	4.95
960	4.95
970	4.95
980	4.95
990	4.95
1000	4.95
1020	4.96
1040	4.96
1060	4.96
1080	4.96
1100	4.97
1120	4.97
1140	4.98
1160	4.98
1180	4.98
1200	4.99
1220	4.99
1240	5.01

END

HRMT−20.PRN UNIT 2, TEST 1
SE1000C

2730	14.515
2745	14.513
2760	14.511
2775	14.508
2790	14.506
2805	14.504
2820	14.502
2835	14.5
2850	14.502
2865	14.504
2880	14.5
2895	14.502
2910	14.5
2925	14.502
2940	14.502
2955	14.495
2970	14.493
2985	14.491
3000	14.493
3015	14.485
3030	14.482
3045	14.478
3060	14.469
3075	14.469
3090	14.463
3105	14.459
3120	14.456
3135	14.456
3150	14.452
3165	14.446
3180	14.443
3195	14.437
3210	14.433
3225	14.433
3240	14.428
3255	14.428
3270	14.428
3285	14.43
3300	14.426
3315	14.426
3330	14.417
3345	14.415
3360	14.411
3375	14.407
3390	14.404
3405	14.404
3420	14.4
3435	14.394
3450	14.398

HRMT-10.PRN UNIT 1, TEST 1
SE1000B

3480	4.81
3495	4.81
3510	4.8
3525	4.81
3540	4.8
3555	4.8
3570	4.8
3585	4.8
3600	4.79
3615	4.79
3630	4.79
3645	4.78
3660	4.78
3675	4.77
3690	4.77
3705	4.77
3720	4.77
3735	4.77
3750	4.77
3765	4.77
3780	4.77
3795	4.77
3810	4.78
3825	4.77
3840	4.77
3855	4.77
3870	4.77
3885	4.78
3900	4.78
3915	4.78
3930	4.78
3945	4.78
3960	4.78
3975	4.78
3990	4.78
4005	4.78
4020	4.78
4035	4.77
4050	4.77
4065	4.77
4080	4.77
4095	4.77

END

HRMT-11.PRN UNIT 1, TEST 2
SE1000B

1660	5.61
1680	5.61
1700	5.61
1720	5.62
1740	5.62
1760	5.63
1780	5.63
1800	5.63
1820	5.63
1840	5.63
1860	5.64
1880	5.64
1900	5.64
1920	5.63
1940	5.63
1960	5.63
1980	5.63
2000	5.63
2020	5.63
2040	5.63
2060	5.63
2080	5.64
2100	5.64
2120	5.64
2140	5.64
2160	5.64
2180	5.65
2200	5.65
2220	5.64
2240	5.64
2260	5.64
2280	5.63
2300	5.63
2320	5.63
2340	5.63
2360	5.62
2380	5.62
2400	5.62
2420	5.62
2440	5.62
2460	5.62
2480	5.62
2500	5.61
2520	5.61
2540	5.6
2560	5.61
2580	5.6
2600	5.6
2620	5.6

HRMT-12.PRN UNIT 1, TEST 3
SE1000B

HRMT-20.PRN UNIT 2, TEST 1
SE1000C

3465	14.402
3480	14.398
3495	14.394
3510	14.394
3525	14.394
3540	14.391
3555	14.391
3570	14.387
3585	14.383
3600	14.378
3615	14.376
3630	14.372
3645	14.366
3660	14.363
3675	14.359
3690	14.359
3705	14.359
3720	14.359
3735	14.359
3750	14.359
3765	14.359
3780	14.361
3795	14.363
3810	14.366
3825	14.361
3840	14.361
3855	14.361
3870	14.359
3885	14.363
3900	14.363
3915	14.363
3930	14.366
3945	14.363
3960	14.363
3975	14.368
3990	14.37
4005	14.374
4020	14.376
4035	14.376
4050	14.378
4065	14.376
4080	14.378
4095	14.372
4110	14.372
4125	14.372
4140	14.374
4155	14.376
4170	14.374
4185	14.37

HRMT-10.PRN UNIT 1, TEST 1
SE1000B

HRMT-11.PRN UNIT 1, TEST 2
SE1000B

2640	5.6
2660	5.6
2680	5.6
2700	5.6
2720	5.6
2740	5.58
2760	5.58
2780	5.57
2800	5.55
2820	5.55
2840	5.54
2860	5.54
2880	5.55

END

HRMT-12.PRN UNIT 1, TEST 3
SE1000B

HRMT-20.PRN UNIT 2, TEST 1
SE1000C

4200	14.374
4215	14.372
4230	14.372
4245	14.372
4260	14.37
4275	14.366
4290	14.366
4305	14.366
4320	14.368
4335	14.366
4350	14.368
4365	14.363
4380	14.363
4395	14.361
4410	14.359
4425	14.359
4440	14.353
4455	14.348
4470	14.357
4485	14.355
4500	14.357
4515	14.357
4530	14.353
4545	14.353
4560	14.35
4575	14.348
4590	14.344
4605	14.342
4620	14.342
4635	14.34
4650	14.34
4665	14.337
4680	14.335
4695	14.329
4710	14.324
4725	14.32
4740	14.318
4755	14.322
4770	14.329
4785	14.329
4800	14.329
4815	14.324
4830	14.324
4845	14.327
4860	14.324
4875	14.324
4890	14.322
4905	14.32
4920	14.318

HRMT-10.PRN UNIT 1, TEST 1
SE1000B

HRMT-11.PRN UNIT 1, TEST 2
SE1000B

HRMT-12.PRN UNIT 1, TEST 3
SE1000B

HRMT-20.PRN UNIT 2, TEST 1
SE1000C

4935	14.32
4950	14.324
4965	14.329
4980	14.331
4995	14.331
5010	14.333
5025	14.333
5040	14.331
5055	14.329
5070	14.329
5085	14.327
5100	14.324
5115	14.322
5130	14.324
5145	14.329
5160	14.333
5175	14.337
5190	14.342
5205	14.346
5220	14.35
5235	14.355
5250	14.359
5265	14.363
5280	14.37
5295	14.372
5310	14.372
5325	14.374
5340	14.374
5355	14.378
5370	14.383
5385	14.391
5400	14.396
5415	14.4
5430	14.407
5445	14.413
5460	14.42
5475	14.424
5490	14.428
5505	14.428
5520	14.428
5535	14.426
5550	14.428
5565	14.43
5580	14.43
5595	14.435
5610	14.439
5625	14.441
5640	14.446
5655	14.45

HRMT−10.PRN UNIT 1, TEST 1
SE1000B

HRMT−11.PRN UNIT 1, TEST 2
SE1000B

HRMT−12.PRN UNIT 1, TEST 3
SE1000B

HRMT−20.PRN UNIT 2, TEST 1
SE1000C

5670	14.452
5685	14.454
5700	14.459
5715	14.463
5730	14.463
5745	14.467
5760	14.472
5775	14.476
5790	14.474
5805	14.482
5820	14.485
5835	14.489
5850	14.487
5865	14.489
5880	14.489
5895	14.491
5910	14.491
5925	14.489
5940	14.485
5955	14.482
5970	14.485
5985	14.489
6000	14.489
6015	14.485
6030	14.485
6045	14.48
6060	14.478
6075	14.474
6090	14.472
6105	14.472
6120	14.472
6135	14.472
6150	14.469
6165	14.467
6180	14.465
6195	14.461
6210	14.456
6225	14.454
6240	14.452
6255	14.448
6270	14.443
6285	14.443
6300	14.446
6315	14.443
6330	14.433
6345	14.43
6360	14.426
6375	14.422
6390	14.417

HRMT-10.PRN UNIT 1, TEST 1
SE1000B

HRMT-11.PRN UNIT 1, TEST 2
SE1000B

HRMT-12.PRN UNIT 1, TEST 3
SE1000B

HRMT-20.PRN UNIT 2, TEST 1
SE1000C

6405	14.415
6420	14.411
6435	14.407
6450	14.404
6465	14.404
6480	14.402
6495	14.398
6510	14.398
6525	14.396
6540	14.4
6555	14.398
6570	14.4
6585	14.394
6600	14.389
6615	14.381
6630	14.376
6645	14.37
6660	14.37
6675	14.37
6690	14.372
6705	14.374
6720	14.374
6735	14.376
6750	14.376
6765	14.378
6780	14.381
6795	14.387
6810	14.396
6825	14.413
6840	14.426
6855	14.433
6870	14.448
6885	14.459
6900	14.465
6915	14.456
6930	14.459
6945	14.45
6960	14.452
6975	14.452
6990	14.452
7005	14.456
7020	14.45
7035	14.439
7050	14.437
7065	14.435
7080	14.433
7095	14.428
7110	14.424
7125	14.424

HRMT-10.PRN UNIT 1, TEST 1
SE1000B

HRMT-11.PRN UNIT 1, TEST 2
SE1000B

HRMT-12.PRN UNIT 1, TEST 3
SE1000B

HRMT-20.PRN UNIT 2, TEST 1
SE1000C

7140	14.422
7155	14.415
7170	14.413
7185	14.411
7200	14.411
7215	14.404
7230	14.398
7245	14.394
7260	14.394
7275	14.389
7290	14.378
7305	14.372
7320	14.366
7335	14.359
7350	14.355
7365	14.348
7380	14.34
7395	14.335
7410	14.335
7425	14.333
7440	14.331
7455	14.331
7470	14.331
7485	14.331
7500	14.329
7515	14.329
7530	14.331
7545	14.329
7560	14.327
7575	14.322
7590	14.324
7605	14.322
7620	14.322
7635	14.324
7650	14.327
7665	14.335
7680	14.337
7695	14.335
7710	14.337
7725	14.337
7740	14.342
7755	14.34
7770	14.344
7785	14.346
7800	14.35
7815	14.357
7830	14.361
7845	14.366
7860	14.37

HRMT-10.PRN UNIT 1, TEST 1		HRMT-11.PRN UNIT 1, TEST 2		HRMT-12.PRN UNIT 1, TEST 3		HRMT-20.PRN UNIT 2, TEST 1	
SE1000B		SE1000B		SE1000B		SE1000C	
						7875	14.372
						7890	14.376
						7905	14.378
						7920	14.378
						7935	14.381
						7950	14.381
						7965	14.385
						7980	14.387
						7995	14.389
						8010	14.389
						8025	14.391
						8040	14.394
						8055	14.398
						8070	14.402
						8085	14.402
						8100	14.407
						8115	14.411
						8130	14.411
						8145	14.415
						8160	14.417
						8175	14.424
						8190	14.428
						8205	14.43
						8220	14.435
						8235	14.439
						8250	14.441
						8265	14.441

END

RAW DATA

PZ002 AND MW010

SE1000B
Environmental Logger
12/28 12:58

Unit# 00480 Test# 0

INPUT 2: Level (F) TOC

P2002
background

Reference 4.54
Scale factor 10.02
Offset 0.01

Step# 0 12/16 15:38

Elapsed Time	Value
0	4.54
15	4.55
30	4.55
45	4.56
60	4.56
75	4.56
90	4.57
105	4.57
120	4.57
135	4.57
150	4.57
165	4.57
180	4.58
195	4.57
210	4.57
225	4.58
240	4.57
255	4.58
270	4.57
285	4.57
300	4.57
315	4.57
330	4.57
345	4.57
360	4.57
375	4.56
390	4.56
405	4.57
420	4.57
435	4.56
450	4.56
465	4.56
480	4.56
495	4.56
510	4.56

SE1000B
Environmental Logger
12/28 13:02

Unit# 00480 Test# 1

INPUT 2: Level (F) TOC

P2002
drawdown

Reference 4.54
Scale factor 10.02
Offset - 0.01

Step# 0 12/19 12:20

Elapsed Time	Value
0	4.54
0.0033	4.54
0.0066	4.54
0.0099	4.54
0.0133	4.54
0.0166	4.54
0.02	4.54
0.0233	4.54
0.0266	4.54
0.03	4.54
0.0333	4.54
0.05	4.54
0.0666	4.54
0.0833	4.54
0.1	4.54
0.1166	4.54
0.1333	4.54
0.15	4.54
0.1666	4.54
0.1833	4.54
0.2	4.54
0.2166	4.54
0.2333	4.54
0.25	4.54
0.2666	4.54
0.2833	4.54
0.3	4.54
0.3166	4.54
0.3333	4.54
0.4167	4.54
0.5	4.54
0.5833	4.54
0.6667	4.54
0.75	4.53
0.8333	4.53

SE1000B
Environmental Logger
12/28 13:06

Unit# 00480 Test# 2

INPUT 2: Level (F) TOC

P2002
recovery

Reference 4.54
Scale factor 10.02
Offset - 0.01

Step# 0 12/21 12:37

Elapsed Time	Value
0	5.51
0.0033	5.51
0.0066	5.51
0.0099	5.51
0.0133	5.51
0.0166	5.51
0.02	5.51
0.0233	5.51
0.0266	5.51
0.03	5.51
0.0333	5.51
0.05	5.51
0.0666	5.51
0.0833	5.51
0.1	5.51
0.1166	5.51
0.1333	5.51
0.15	5.51
0.1666	5.51
0.1833	5.51
0.2	5.51
0.2166	5.51
0.2333	5.51
0.25	5.51
0.2666	5.51
0.2833	5.51
0.3	5.51
0.3166	5.51
0.3333	5.52
0.4167	5.51
0.5	5.51
0.5833	5.51
0.6667	5.51
0.75	5.51
0.8333	5.51

SE1000C
Environmental Logger
12/28 12:47

Unit# 00001 Test 0

INPUT 2: Level (F) TOC

MW610
(background)

Reference 6.120
Linearity 0.000
Scale factor 19.970
Offset 0.010
Delay mSEC 50.000

Step 0 12/16 15:38:56

Elapsed Time	INPUT 2
0	6.12
15	6.138
30	6.145
45	6.157
60	6.157
75	6.164
90	6.164
105	6.164
120	6.164
135	6.164
150	6.164
165	6.164
180	6.164
195	6.164
210	6.164
225	6.164
240	6.164
255	6.164
270	6.164
285	6.157
300	6.157
315	6.157
330	6.151
345	6.151
360	6.157
375	6.151
390	6.151
405	6.151
420	6.151
435	6.151
450	6.145
465	6.145
480	6.145

SE1000B Environmental Logger 12/28 12:58		SE1000B Environmental Logger 12/28 13:02		SE1000B Environmental Logger 12/28 13:06		SE1000C Environmental Logger 12/28 12:47	
525	4.55	0.9167	4.54	0.9167	5.51	495	6.145
540	4.55	1	4.54	1	5.51	510	6.138
555	4.55	1.0833	4.54	1.0833	5.51	525	6.138
570	4.55	1.1667	4.54	1.1667	5.5	540	6.126
585	4.54	1.25	4.54	1.25	5.5	555	6.126
600	4.55	1.3333	4.55	1.3333	5.5	570	6.12
615	4.55	1.4166	4.55	1.4166	5.5	585	6.113
630	4.55	1.5	4.55	1.5	5.49	600	6.12
645	4.55	1.5833	4.56	1.5833	5.49	615	6.126
660	4.55	1.6667	4.56	1.6667	5.49	630	6.126
675	4.55	1.75	4.56	1.75	5.49	645	6.126
690	4.55	1.8333	4.57	1.8333	5.48	660	6.126
705	4.55	1.9167	4.57	1.9167	5.48	675	6.126
720	4.54	2	4.58	2	5.48	690	6.132
735	4.54	2.5	4.61	2.5	5.46	705	6.126
750	4.54	3	4.65	3	5.44	720	6.12
765	4.54	3.5	4.69	3.5	5.43	735	6.107
780	4.54	4	4.73	4	5.42	750	6.101
795	4.54	4.5	4.78	4.5	5.4	765	6.107
810	4.53	5	4.82	5	5.39	780	6.101
825	4.53	5.5	4.85	5.5	5.38	795	6.101
840	4.53	6	4.89	6	5.38	810	6.101
855	4.53	6.5	4.92	6.5	5.36	825	6.094
870	4.53	7	4.94	7	5.35	840	6.094
885	4.53	7.5	4.97	7.5	5.35	855	6.094
900	4.53	8	4.98	8	5.34	870	6.094
915	4.53	8.5	5	8.5	5.34	885	6.088
930	4.53	9	5.02	9	5.33	900	6.082
945	4.53	9.5	5.03	9.5	5.32	915	6.088
960	4.53	10	5.04	10	5.31	930	6.088
975	4.53	12	5.07	12	5.29	945	6.088
990	4.53	14	5.09	14	5.27	960	6.088
1005	4.53	16	5.1	16	5.24	975	6.082
1020	4.53	18	5.1	18	5.23	990	6.088
1035	4.53	20	5.1	20	5.21	1005	6.082
1050	4.53	22	5.1	22	5.19	1020	6.088
1065	4.53	24	5.1	24	5.18	1035	6.088
1080	4.53	26	5.1	26	5.16	1050	6.094
1095	4.53	28	5.1	28	5.15	1065	6.088
1110	4.53	30	5.1	30	5.14	1080	6.094
1125	4.53	32	5.1	32	5.12	1095	6.094
1140	4.53	34	5.1	34	5.11	1110	6.094
1155	4.53	36	5.1	36	5.1	1125	6.101
1170	4.53	38	5.1	38	5.09	1140	6.101
1185	4.53	40	5.1	40	5.08	1155	6.101
1200	4.53	42	5.1	42	5.07	1170	6.101
1215	4.52	44	5.1	44	5.06	1185	6.101
1230	4.52	46	5.1	46	5.05	1200	6.094

SE1000B Environmental Logger 12/28 12:58		SE1000B Environmental Logger 12/28 13:02		SE1000B Environmental Logger 12/28 13:06		SE1000C Environmental Logger 12/28 12:47	
1245	4.52	48	5.11	48	5.04	1215	6.094
1260	4.52	50	5.11	50	5.04	1230	6.094
1275	4.52	52	5.11	52	5.02	1245	6.094
1290	4.52	54	5.11	54	5.02	1260	6.094
1305	4.52	56	5.12	56	5.02	1275	6.094
1320	4.52	58	5.12	58	5.01	1290	6.088
1335	4.52	60	5.12	60	5	1305	6.094
1350	4.53	62	5.12	62	5	1320	6.094
1365	4.53	64	5.12	64	4.99	1335	6.101
1380	4.53	66	5.12	66	4.98	1350	6.107
1395	4.53	68	5.13	68	4.98	1365	6.107
1410	4.53	70	5.13	70	4.97	1380	6.113
1425	4.54	72	5.13	72	4.97	1395	6.12
1440	4.54	74	5.13	74	4.96	1410	6.12
1455	4.54	76	5.13	76	4.96	1425	6.126
1470	4.54	78	5.13	78	4.95	1440	6.132
1485	4.54	80	5.14	80	4.95	1455	6.138
1500	4.55	82	5.14	82	4.94	1470	6.138
1515	4.55	84	5.14	84	4.94	1485	6.145
1530	4.55	86	5.14	86	4.93	1500	6.145
1545	4.56	88	5.14	88	4.93	1515	6.151
1560	4.56	90	5.14	90	4.92	1530	6.157
1575	4.56	92	5.15	92	4.92	1545	6.164
1590	4.57	94	5.15	94	4.92	1560	6.164
1605	4.57	96	5.16	96	4.91	1575	6.17
1620	4.57	98	5.16	98	4.91	1590	6.176
1635	4.58	100	5.16	100	4.91	1605	6.183
1650	4.58	110	5.17	110	4.89	1620	6.189
1665	4.58	120	5.19	120	4.88	1635	6.189
1680	4.58	130	5.22	130	4.87	1650	6.195
1695	4.59	140	5.24	140	4.86	1665	6.202
1710	4.59	150	5.26	150	4.85	1680	6.208
1725	4.59	160	5.27	160	4.84	1695	6.214
1740	4.59	170	5.29	170	4.83	1710	6.22
1755	4.59	180	5.29	180	4.82	1725	6.22
1770	4.6	190	5.3	190	4.82	1740	6.227
1785	4.6	200	5.31	200	4.81	1755	6.227
1800	4.6	210	5.31	210	4.8	1770	6.233
1815	4.6	220	5.32	220	4.8	1785	6.239
1830	4.6	230	5.33	230	4.79	1800	6.246
1845	4.6	240	5.33	240	4.79	1815	6.246
1860	4.6	250	5.33	250	4.79	1830	6.246
1875	4.61	260	5.34	260	4.78	1845	6.252
1890	4.61	270	5.34	270	4.78	1860	6.252
1905	4.61	280	5.34	280	4.77	1875	6.258
1920	4.61	290	5.35	290	4.77	1890	6.265
1935	4.61	300	5.35	300	4.76	1905	6.271
1950	4.62	310	5.35	310	4.76	1920	6.271

SE1000B Environmental Logger 12/28 12:58		SE1000B Environmental Logger 12/28 13:02		SE1000B Environmental Logger 12/28 13:06		SE1000C Environmental Logger 12/28 12:47	
1965	4.62	320	5.36	320	4.75	1935	6.277
1980	4.62	330	5.36	330	4.74	1950	6.283
1995	4.62	340	5.37	340	4.74	1965	6.29
2010	4.62	350	5.37	350	4.74	1980	6.29
2025	4.62	360	5.37	360	4.73	1995	6.296
2040	4.63	370	5.37	370	4.72	2010	6.296
2055	4.63	380	5.38	380	4.72	2025	6.296
2070	4.63	390	5.38	390	4.72	2040	6.296
2085	4.64	400	5.38	400	4.72	2055	6.302
2100	4.64	410	5.38	410	4.72	2070	6.309
2115	4.64	420	5.38	420	4.71	2085	6.315
2130	4.64	430	5.39	430	4.71	2100	6.315
2145	4.64	440	5.39	440	4.71	2115	6.321
2160	4.64	450	5.39	450	4.71	2130	6.321
2175	4.64	460	5.39	460	4.71	2145	6.328
2190	4.64	470	5.39	470	4.71	2160	6.328
2205	4.65	480	5.39	480	4.71	2175	6.328
2220	4.65	490	5.4	490	4.71	2190	6.334
2235	4.65	500	5.4	500	4.71	2205	6.34
2250	4.65	510	5.4	510	4.71	2220	6.34
2265	4.65	520	5.4	520	4.7	2235	6.347
2280	4.65	530	5.4	530	4.7	2250	6.353
2295	4.66	540	5.4	540	4.7	2265	6.353
2310	4.66	550	5.4	550	4.7	2280	6.359
2325	4.66	560	5.4	560	4.69	2295	6.365
2340	4.66	570	5.4	570	4.69	2310	6.365
2355	4.66	580	5.4	580	4.69	2325	6.372
2370	4.66	590	5.4	590	4.69	2340	6.378
2385	4.67	600	5.39	600	4.69	2355	6.378
2400	4.67	610	5.39	610	4.69	2370	6.384
2415	4.67	620	5.39	620	4.7	2385	6.391
2430	4.67	630	5.38	630	4.69	2400	6.391
2445	4.67	640	5.38	640	4.69	2415	6.397
2460	4.67	650	5.38	650	4.69	2430	6.403
2475	4.68	660	5.38	660	4.69	2445	6.403
2490	4.68	670	5.38	670	4.69	2460	6.41
2505	4.68	680	5.38	680	4.69	2475	6.41
2520	4.68	690	5.38	690	4.69	2490	6.416
2535	4.68	700	5.38	700	4.69	2505	6.416
2550	4.68	710	5.38	710	4.69	2520	6.416
2565	4.68	720	5.39	720	4.69	2535	6.422
2580	4.68	730	5.39	730	4.69	2550	6.429
2595	4.67	740	5.39	740	4.69	2565	6.429
2610	4.67	750	5.38	750	4.69	2580	6.435
2625	4.67	760	5.39	760	4.69	2595	6.435
2640	4.66	770	5.39	770	4.69	2610	6.429
2655	4.66	780	5.39	780	4.69	2625	6.429
2670	4.65	790	5.39	790	4.7	2640	6.429

SE1000B
Environmental Logger
12/28 12:58

2685	4.66
2700	4.65
2715	4.64
2730	4.64
2745	4.63
2760	4.63
2775	4.63
2790	4.63
2805	4.64
2820	4.63
2835	4.63
2850	4.64
2865	4.63
2880	4.63
2895	4.63
2910	4.63
2925	4.64
2940	4.58
2955	4.66
2970	4.66
2985	4.88
3000	4.79
3015	4.73
3030	4.7
3045	4.68
3060	4.66
3075	4.65
3090	4.65
3105	4.64
3120	4.63
3135	4.63
3150	4.63
3165	4.62
3180	4.62
3195	4.61
3210	4.61
3225	4.6
3240	4.6
3255	4.6
3270	4.6
3285	4.6
3300	4.6
3315	4.6
3330	4.59
3345	4.59
3360	4.59
3375	4.58
3390	4.58

SE1000B
Environmental Logger
12/28 13:02

800	5.39
810	5.4
820	5.4
830	5.41
840	5.41
850	5.42
860	5.42
870	5.43
880	5.43
890	5.44
900	5.44
910	5.44
920	5.44
930	5.45
940	5.45
950	5.46
960	5.46
970	5.46
980	5.45
990	5.45
1000	5.45
1020	5.47
1040	5.48
1060	5.49
1080	5.5
1100	5.5
1120	5.51
1140	5.51
1160	5.52
1180	5.53
1200	5.53
1220	5.54
1240	5.54
1260	5.55
1280	5.56
1300	5.56
1320	5.55
1340	5.57
1360	5.57
1380	5.58
1400	5.57
1420	5.57
1440	5.56
1460	5.55
1480	5.54
1500	5.54
1520	5.54
1540	5.54

SE1000B
Environmental Logger
12/28 13:06

800	4.7
810	4.7
820	4.7
830	4.7
840	4.71
850	4.71
860	4.71
870	4.71
880	4.71
890	4.71
900	4.71
910	4.71
920	4.71
930	4.71
940	4.71
950	4.71
960	4.72
970	4.72
980	4.72
990	4.72
1000	4.72
1020	4.72
1040	4.72
1060	4.72
1080	4.72
1100	4.73
1120	4.73
1140	4.73
1160	4.74
1180	4.74
1200	4.74
1220	4.75
1240	4.83

END

SE1000C
Environmental Logger
12/28 12:47

2655	6.429
2670	6.422
2685	6.422
2700	6.416
2715	6.416
2730	6.41
2745	6.403
2760	6.41
2775	6.403
2790	6.403
2805	6.403
2820	6.397
2835	6.397
2850	6.397
2865	6.397
2880	6.397
2895	6.397
2910	6.391
2925	6.397
2940	6.397
2955	6.391
2970	6.391
2985	6.391
3000	6.391
3015	6.391
3030	6.391
3045	6.384
3060	6.378
3075	6.378
3090	6.378
3105	6.372
3120	6.372
3135	6.372
3150	6.365
3165	6.365
3180	6.359
3195	6.359
3210	6.353
3225	6.353
3240	6.353
3255	6.347
3270	6.353
3285	6.353
3300	6.353
3315	6.353
3330	6.347
3345	6.347
3360	6.34

SE1000B Environmental Logger 12/28 12:58		SE1000B Environmental Logger 12/28 13:02		SE1000B Environmental Logger 12/28 13:06	SE1000C Environmental Logger 12/28 12:47	
3405	4.57	1560	5.54		3375	6.334
3420	4.57	1580	5.54		3390	6.328
3435	4.57	1600	5.54		3405	6.328
3450	4.57	1620	5.54		3420	6.328
3465	4.57	1640	5.54		3435	6.321
3480	4.57	1660	5.55		3450	6.321
3495	4.56	1680	5.55		3465	6.328
3510	4.56	1700	5.56		3480	6.321
3525	4.56	1720	5.56		3495	6.321
3540	4.56	1740	5.56		3510	6.315
3555	4.56	1760	5.56		3525	6.315
3570	4.56	1780	5.56		3540	6.315
3585	4.55	1800	5.56		3555	6.315
3600	4.55	1820	5.56		3570	6.315
3615	4.55	1840	5.56		3585	6.309
3630	4.55	1860	5.56		3600	6.309
3645	4.54	1880	5.56		3615	6.302
3660	4.54	1900	5.57		3630	6.302
3675	4.54	1920	5.56		3645	6.296
3690	4.54	1940	5.56		3660	6.29
3705	4.53	1960	5.56		3675	6.283
3720	4.53	1980	5.56		3690	6.283
3735	4.53	2000	5.56		3705	6.283
3750	4.53	2020	5.56		3720	6.283
3765	4.53	2040	5.56		3735	6.283
3780	4.54	2060	5.57		3750	6.283
3795	4.54	2080	5.57		3765	6.283
3810	4.54	2100	5.58		3780	6.283
3825	4.54	2120	5.58		3795	6.283
3840	4.54	2140	5.58		3810	6.29
3855	4.54	2160	5.58		3825	6.29
3870	4.54	2180	5.58		3840	6.29
3885	4.54	2200	5.58		3855	6.29
3900	4.54	2220	5.58		3870	6.29
3915	4.54	2240	5.58		3885	6.29
3930	4.54	2260	5.57		3900	6.296
3945	4.54	2280	5.57		3915	6.296
3960	4.54	2300	5.56		3930	6.302
3975	4.54	2320	5.56		3945	6.302
3990	4.55	2340	5.56		3960	6.309
4005	4.54	2360	5.56		3975	6.309
4020	4.54	2380	5.55		3990	6.309
4035	4.54	2400	5.55		4005	6.309
4050	4.54	2420	5.55		4020	6.315
4065	4.54	2440	5.55		4035	6.315
4080	4.54	2460	5.55		4050	6.315
4095	4.54	2480	5.55		4065	6.315
END		2500	5.55		4080	6.315

SE1000B
Environmental Logger
12/28 12:58

SE1000B
Environmental Logger
12/28 13:02

2520	5.54
2540	5.54
2560	5.54
2580	5.53
2600	5.53
2620	5.53
2640	5.54
2660	5.54
2680	5.54
2700	5.54
2720	5.54
2740	5.53
2760	5.52
2780	5.52
2800	5.49
2820	5.49
2840	5.49
2860	5.49
2880	5.49

END

SE1000B
Environmental Logger
12/28 13:06

SE1000C
Environmental Logger
12/28 12:47

4095	6.315
4110	6.315
4125	6.315
4140	6.315
4155	6.315
4170	6.315
4185	6.309
4200	6.309
4215	6.309
4230	6.309
4245	6.315
4260	6.315
4275	6.315
4290	6.315
4305	6.321
4320	6.315
4335	6.315
4350	6.321
4365	6.321
4380	6.321
4395	6.321
4410	6.321
4425	6.321
4440	6.321
4455	6.315
4470	6.321
4485	6.321
4500	6.321
4515	6.328
4530	6.328
4545	6.328
4560	6.328
4575	6.328
4590	6.328
4605	6.328
4620	6.334
4635	6.334
4650	6.334
4665	6.334
4680	6.334
4695	6.334
4710	6.328
4725	6.328
4740	6.321
4755	6.321
4770	6.328
4785	6.334
4800	6.334

SE1000B Environmental Logger 12/28 12:58	SE1000B Environmental Logger 12/28 13:02	SE1000B Environmental Logger 12/28 13:06	SE1000C Environmental Logger 12/28 12:47	
			4815	6.334
			4830	6.334
			4845	6.334
			4860	6.34
			4875	6.34
			4890	6.34
			4905	6.34
			4920	6.34
			4935	6.34
			4950	6.34
			4965	6.347
			4980	6.347
			4995	6.359
			5010	6.353
			5025	6.353
			5040	6.353
			5055	6.353
			5070	6.353
			5085	6.353
			5100	6.353
			5115	6.353
			5130	6.353
			5145	6.353
			5160	6.359
			5175	6.359
			5190	6.365
			5205	6.372
			5220	6.378
			5235	6.384
			5250	6.391
			5265	6.391
			5280	6.397
			5295	6.403
			5310	6.41
			5325	6.41
			5340	6.416
			5355	6.422
			5370	6.429
			5385	6.435
			5400	6.441
			5415	6.447
			5430	6.454
			5445	6.46
			5460	6.466
			5475	6.46
			5490	6.466
			5505	6.466
			5520	6.46

SE1000B
Environmental Logger
12/28 12:58

SE1000B
Environmental Logger
12/28 13:02

SE1000B
Environmental Logger
12/28 13:06

SE1000C
Environmental Logger
12/28 12:47

5535	6.466
5550	6.466
5565	6.466
5580	6.466
5595	6.466
5610	6.466
5625	6.466
5640	6.466
5655	6.466
5670	6.466
5685	6.466
5700	6.473
5715	6.479
5730	6.479
5745	6.479
5760	6.479
5775	6.485
5790	6.479
5805	6.492
5820	6.511
5835	6.517
5850	6.523
5865	6.511
5880	6.517
5895	6.523
5910	6.529
5925	6.529
5940	6.536
5955	6.536
5970	6.542
5985	6.548
6000	6.555
6015	6.555
6030	6.555
6045	6.555
6060	6.555
6075	6.555
6090	6.555
6105	6.555
6120	6.555
6135	6.555
6150	6.555
6165	6.555
6180	6.555
6195	6.555
6210	6.555
6225	6.561
6240	6.561

SE1000B
Environmental Logger
12/28 12:58

SE1000B
Environmental Logger
12/28 13:02

SE1000B
Environmental Logger
12/28 13:06

SE1000C
Environmental Logger
12/28 12:47

6255	6.561
6270	6.561
6285	6.561
6300	6.567
6315	6.567
6330	6.567
6345	6.567
6360	6.567
6375	6.567
6390	6.567
6405	6.567
6420	6.561
6435	6.561
6450	6.555
6465	6.555
6480	6.555
6495	6.555
6510	6.555
6525	6.555
6540	6.555
6555	6.555
6570	6.555
6585	6.548
6600	6.548
6615	6.542
6630	6.542
6645	6.536
6660	6.536
6675	6.536
6690	6.542
6705	6.542
6720	6.542
6735	6.542
6750	6.548
6765	6.548
6780	6.548
6795	6.555
6810	6.555
6825	6.561
6840	6.561
6855	6.561
6870	6.555
6885	6.555
6900	6.555
6915	6.548
6930	6.536
6945	6.529
6960	6.517

SE1000B Environmental Logger 12/28 12:58		SE1000B Environmental Logger 12/28 13:02		SE1000B Environmental Logger 12/28 13:06		SE1000C Environmental Logger 12/28 12:47	
						6975	6.517
						6990	6.517
						7005	6.517
						7020	6.511
						7035	6.498
						7050	6.492
						7065	6.485
						7080	6.479
						7095	6.473
						7110	6.46
						7125	6.454
						7140	6.454
						7155	6.454
						7170	6.454
						7185	6.454
						7200	6.454
						7215	6.454
						7230	6.454
						7245	6.447
						7260	6.447
						7275	6.454
						7290	6.447
						7305	6.447
						7320	6.435
						7335	6.435
						7350	6.429
						7365	6.422
						7380	6.416
						7395	6.41
						7410	6.41
						7425	6.41
						7440	6.41
						7455	6.41
						7470	6.41
						7485	6.41
						7500	6.41
						7515	6.41
						7530	6.416
						7545	6.416
						7560	6.416
						7575	6.41
						7590	6.416
						7605	6.416
						7620	6.416
						7635	6.416
						7650	6.422
						7665	6.429
						7680	6.435

SE1000B
Environmental Logger
12/28 12:58

SE1000B
Environmental Logger
12/28 13:02

SE1000B
Environmental Logger
12/28 13:06

SE1000C
Environmental Logger
12/28 12:47

7695	6.435
7710	6.441
7725	6.441
7740	6.447
7755	6.447
7770	6.454
7785	6.454
7800	6.466
7815	6.466
7830	6.473
7845	6.479
7860	6.485
7875	6.492
7890	6.498
7905	6.504
7920	6.511
7935	6.517
7950	6.523
7965	6.523
7980	6.529
7995	6.529
8010	6.536
8025	6.542
8040	6.548
8055	6.548
8070	6.555
8085	6.561
8100	6.567
8115	6.567
8130	6.574
8145	6.58
8160	6.58
8175	6.593
8190	6.599
8205	6.605
8220	6.611
8235	6.618
8250	6.624
8265	6.63

END

RAW DATA

PUMPING TEST AT MW017

MW-17 MANUAL DRAWDOWN MEASUREMENTS
TEST BEGAN JANUARY 9, 1993: 1100 HRS

REAL TIME	ELAPSED TIME (MIN)	DISTANCE TO WL (FT)	DRAWDOWN (FT)	PUMPING RATE (GPM)	COMMENTS
1100	0.0	10.54	0.00		
	0.5	12.21	1.67		
1101	1.0	12.31	1.77		
1102	2.0	12.41	1.87		
1103	3.0	12.43	1.89	0.09	
1104	4.0	12.49	1.95		
1105	5.0	12.51	1.97		
1106	6.0	12.56	2.02		
	6.5	12.58	2.04		
1107	7.0	12.62	2.08		
1110	10.0	12.92	2.38		
	13.5	13.27	2.73		
1117	17.0	13.30	2.76	0.08	
1121	21.0	13.64	3.10	0.08	
1125	25.0	14.11	3.57	0.09	ADJUSTED TO 0.08
1130	30.0	14.59	4.05		
1135	35.0	15.02	4.48	0.07	ADJUSTED TO 0.09
1140	40.0	15.57	5.03		
1145	45.0	16.11	5.57	0.07	ADJUSTED TO 0.08
1150	50.0	16.62	6.08		
1155	55.0	16.99	6.45	0.06	ADJUSTED TO 0.09
1200	60.0	17.63	7.09	0.08	
1205	65.0	18.19	7.65	0.08	
1210	70.0	18.67	8.13		
1215	75.0	19.14	8.60	0.07	ADJUSTED TO 0.09
1220	80.0	19.33	8.79		
1225	85.0	19.45	8.91	0.09	
1230	90.0	19.64	9.10	0.09	
1235	95.0	19.89	9.35	0.09	
1240	100.0	20.06	9.52	0.08	
1250	110.0	20.35	9.81	0.1	ADJUSTED TO 0.08
1300	120.0	20.79	10.25	0.05	*
1310	130.0	20.91	10.37	0.06	ADJUSTED TO 0.09
1320	140.0	21.70	11.16		
1325	145.0	21.74	11.20	0.08	
1330	150.0	21.88	11.34	0.08	
1340	160.0	22.09	11.55	0.05	ADJUSTED TO 0.08
1350	170.0	22.28	11.74	0.09	
1353	173.0	NA		0.08	
1410	190.0	23.23	12.69	0.1	ADJUSTED TO 0.09

MW-17 MANUAL DRAWDOWN MEASUREMENTS
TEST BEGAN JANUARY 9, 1993: 1100 HRS

REAL TIME	ELAPSED TIME (MIN)	DISTANCE TO WL (FT)	DRAWDOWN (FT)	PUMPING RATE (GPM)	COMMENTS
1420	200.0	23.66	13.12	0.09	
1430	210.0	24.12	13.58	0.1	
1503	243.0	NA		0.08	
1506	246.0	25.44	14.90	0.08	
1531	271.0	26.27	15.73		
1550	290.0	NA		0.06	ADJUSTED TO 0.11
1559	299.0	NA		0.07	
1600	300.0	27.24	16.70		
1612	312.0 STOP PUMPING				

* – PUMPING RATE DROPPED OFF TO NOTHING. LOWERED PUMP SLIGHTLY AND ADJUSTED THE PUMPING RATE OVER THE NEXT 10–15 MINUTES.

RAW DATA

PZ003, PZ004, AND MW017

HRMT-01.WK1
SE1000B
Environmental Logger
01/14 11:56

Unit# 00480 Test# 0 PZ003 during pumping

INPUT 1: Level (F) TOC

Reference 13.93
Scale factor 10.02
Offset 0.01

Step# 0 01/09 11:00

Elapsed Time	Value
0	9.84
0.0033	9.84
0.0066	9.83
0.0099	9.83
0.0133	9.84
0.0166	9.83
0.02	9.83
0.0233	9.84
0.0266	9.84
0.03	9.83
0.0333	9.83
0.05	9.83
0.0666	9.83
0.0833	9.83
0.1	9.83
0.1166	9.83
0.1333	9.83
0.15	9.83
0.1666	9.83
0.1833	9.83
0.2	9.83
0.2166	9.83
0.2333	9.83
0.25	9.83
0.2666	9.83
0.2833	9.83
0.3	9.83
0.3166	9.83
0.3333	9.83
0.4167	9.83
0.5	9.83
0.5833	9.83

HRMT-02.WK1
SE1000B
Environmental Logger
01/14 11:58

Unit# 00480 Test# 0 PZ004 during pumping

INPUT 2: Level (F) TOC

Reference 22.74
Scale factor 10.02
Offset - 0.01

Step# 0 01/09 11:00

Elapsed Time	Value
0	9.71
0.0033	9.7
0.0066	9.71
0.0099	9.71
0.0133	9.7
0.0166	9.7
0.02	9.71
0.0233	9.7
0.0266	9.7
0.03	9.7
0.0333	9.71
0.05	9.7
0.0666	9.7
0.0833	9.7
0.1	9.7
0.1166	9.7
0.1333	9.7
0.15	9.7
0.1666	9.7
0.1833	9.7
0.2	9.7
0.2166	9.7
0.2333	9.7
0.25	9.7
0.2666	9.7
0.2833	9.7
0.3	9.7
0.3166	9.7
0.3333	9.7
0.4167	9.7
0.5	9.7
0.5833	9.7

HRMT-11.WK1
SE1000B
Environmental Logger
01/14 11:32

Unit# 00480 Test# 1 PZ003 during recovery

INPUT 1: Level (F) TOC

Reference 13.93
Scale factor 10.02
Offset 0.01

Step# 0 01/09 16:10

Elapsed Time	Value
0	9.83
0.0033	9.83
0.0066	9.83
0.0099	9.83
0.0133	9.83
0.0166	9.84
0.02	9.83
0.0233	9.83
0.0266	9.83
0.03	9.83
0.0333	9.83
0.05	9.84
0.0666	9.84
0.0833	9.83
0.1	9.83
0.1166	9.83
0.1333	9.83
0.15	9.83
0.1666	9.84
0.1833	9.83
0.2	9.83
0.2166	9.83
0.2333	9.83
0.25	9.84
0.2666	9.84
0.2833	9.84
0.3	9.84
0.3166	9.84
0.3333	9.84
0.4167	9.83
0.5	9.83
0.5833	9.83

HRMT-12.WK1
SE1000B
Environmental Logger
01/14 11:49

Unit# 00480 Test# 1 MW017 (pumped well) recovery

INPUT 2: Level (F) TOC

Reference 27.68
Scale factor 10.02
Offset - 0.01

Step# 0 01/09 16:10

Elapsed Time	Value
0	30.19
0.0033	30.19
0.0066	30.18
0.0099	30.18
0.0133	30.17
0.0166	30.17
0.02	30.16
0.0233	30.16
0.0266	30.15
0.03	30.15
0.0333	30.14
0.05	30.12
0.0666	30.11
0.0833	30.09
0.1	30.07
0.1166	30.06
0.1333	30.04
0.15	30.02
0.1666	30
0.1833	29.99
0.2	29.97
0.2166	29.95
0.2333	29.94
0.25	29.92
0.2666	29.9
0.2833	29.89
0.3	29.88
0.3166	29.88
0.3333	29.87
0.4167	29.86
0.5	29.86
0.5833	29.87

HRMT-01.WK1		HRMT-02.WK1		HRMT-11.WK1		HRMT-12.WK1	
0.6667	9.83	0.6667	9.71	0.6667	9.83	0.6667	29.88
0.75	9.83	0.75	9.7	0.75	9.83	0.75	29.88
0.8333	9.83	0.8333	9.71	0.8333	9.83	0.8333	29.88
0.9167	9.83	0.9167	9.71	0.9167	9.83	0.9167	29.88
1	9.83	1	9.7	1	9.83	1	29.88
1.0833	9.83	1.0833	9.7	1.0833	9.83	1.0833	29.88
1.1667	9.83	1.1667	9.71	1.1667	9.83	1.1667	29.87
1.25	9.83	1.25	9.71	1.25	9.83	1.25	29.88
1.3333	9.83	1.3333	9.71	1.3333	9.83	1.3333	29.88
1.4166	9.83	1.4166	9.71	1.4166	9.83	1.4166	29.87
1.5	9.83	1.5	9.71	1.5	9.83	1.5	29.88
1.5833	9.83	1.5833	9.71	1.5833	9.83	1.5833	29.88
1.6667	9.84	1.6667	9.71	1.6667	9.83	1.6667	29.87
1.75	9.83	1.75	9.71	1.75	9.83	1.75	29.88
1.8333	9.83	1.8333	9.71	1.8333	9.83	1.8333	29.88
1.9167	9.83	1.9167	9.7	1.9167	9.83	1.9167	29.87
2	9.83	2	9.7	2	9.84	2	29.87
2.5	9.83	2.5	9.7	2.5	9.83	2.5	29.88
3	9.83	3	9.71	3	9.83	3	29.87
3.5	9.83	3.5	9.71	3.5	9.83	3.5	29.87
4	9.83	4	9.71	4	9.83	4	29.87
4.5	9.83	4.5	9.71	4.5	9.83	4.5	29.86
5	9.83	5	9.71	5	9.84	5	29.86
5.5	9.83	5.5	9.71	5.5	9.83	5.5	29.86
6	9.83	6	9.7	6	9.84	6	29.86
6.5	9.83	6.5	9.71	6.5	9.84	6.5	29.86
7	9.83	7	9.71	7	9.83	7	29.86
7.5	9.83	7.5	9.71	7.5	9.84	7.5	29.86
8	9.82	8	9.7	8	9.84	8	29.86
8.5	9.83	8.5	9.71	8.5	9.84	8.5	29.85
9	9.81	9	9.71	9	9.83	9	29.85
9.5	9.83	9.5	9.71	9.5	9.84	9.5	29.85
10	9.82	10	9.7	10	9.83	10	29.85
12	9.69	12	9.7	12	9.83	12	29.84
14	9.8	14	9.7	14	9.84	14	29.84
16	9.8	16	9.7	16	9.83	16	29.83
18	9.8	18	9.7	18	9.84	18	29.82
20	9.8	20	9.7	20	9.84	20	29.82
22	9.79	22	9.7	22	9.84	22	29.82
24	9.79	24	9.7	24	9.84	24	29.81
26	9.8	26	9.7	26	9.84	26	29.81
28	9.8	28	9.7	28	9.84	28	29.8
30	9.79	30	9.7	30	9.84	30	29.8
32	9.8	32	9.7	32	9.84	32	29.79
34	9.8	34	9.7	34	9.84	34	29.79
36	9.8	36	9.7	36	9.84	36	29.78
38	9.79	38	9.7	38	9.84	38	29.78
40	9.8	40	9.7	40	9.84	40	29.78
42	9.8	42	9.7	42	9.84	42	29.77

HRMT-01.WK1

44	9.8
46	9.79
48	9.8
50	9.8
52	9.8
54	9.8
56	9.79
58	9.79
60	9.79
62	9.79
64	9.79
66	9.79
68	9.79
70	9.79
72	9.79
74	9.8
76	9.79
78	9.79
80	9.79
82	9.79
84	9.79
86	9.79
88	9.79
90	9.79
92	9.79
94	9.79
96	9.79
98	9.79
100	9.79
110	9.79
120	9.78
130	9.79
140	9.79
150	9.79
160	9.79
170	9.8
180	9.8
190	9.8
200	9.8
210	9.8
220	9.8
230	9.8

END

HRMT-02.WK1

44	9.7
46	9.7
48	9.7
50	9.7
52	9.7
54	9.7
56	9.7
58	9.7
60	9.71
62	9.7
64	9.7
66	9.7
68	9.7
70	9.7
72	9.7
74	9.7
76	9.7
78	9.7
80	9.69
82	9.7
84	9.7
86	9.7
88	9.7
90	9.7
92	9.7
94	9.7
96	9.7
98	9.69
100	9.69
110	9.7
120	9.69
130	9.7
140	9.69
150	9.7
160	9.7
170	9.7
180	9.7
190	9.7
200	9.7
210	9.7
220	9.7
230	9.69

END

HRMT-11.WK1

44	9.84
46	9.84
48	9.84
50	9.84
52	9.84
54	9.84
56	9.84
58	9.84
60	9.84
62	9.84
64	9.84
66	9.84
68	9.84
70	9.84
72	9.84
74	9.84
76	9.84
78	9.84
80	9.84
82	9.84
84	9.85
86	9.84
88	9.84
90	9.84
92	9.84
94	9.84
96	9.84
98	9.84
100	9.84
110	9.84
120	9.85
130	9.84
140	9.84
150	9.84
160	9.84
170	9.85
180	9.84
190	9.84
200	9.84
210	9.84
220	9.84
230	9.84
240	9.85
250	9.85
260	9.85
270	9.85
280	9.85
290	9.85
300	9.85

HRMT-12.WK1

44	29.76
46	29.76
48	29.76
50	29.75
52	29.75
54	29.75
56	29.74
58	29.74
60	29.73
62	29.73
64	29.72
66	29.72
68	29.72
70	29.71
72	29.71
74	29.71
76	29.7
78	29.7
80	29.69
82	29.69
84	29.69
86	29.69
88	29.68
90	29.68
92	29.67
94	29.67
96	29.67
98	29.66
100	29.66
110	29.64
120	29.63
130	29.61
140	29.59
150	29.57
160	29.56
170	29.54
180	29.53
190	29.51
200	29.5
210	29.48
220	29.46
230	29.45
240	29.44
250	29.43
260	29.41
270	29.39
280	29.38
290	29.37
300	29.35

HRMT-01.WK1		HRMT-02.WK1		HRMT-11.WK1		HRMT-12.WK1	
				310	9.85	310	29.34
				320	9.85	320	29.32
				330	9.85	330	29.31
				340	9.85	340	29.3
				350	9.85	350	29.28
				360	9.85	360	29.27
				370	9.85	370	29.26
				380	9.85	380	29.24
				390	9.85	390	29.23
				400	9.85	400	29.22
				410	9.85	410	29.2
				420	9.85	420	29.19
				430	9.85	430	29.18
				440	9.85	440	29.16
				450	9.85	450	29.15
				460	9.85	460	29.14
				470	9.85	470	29.12
				480	9.85	480	29.11
				490	9.85	490	29.1
				500	9.85	500	29.08
				510	9.85	510	29.07
				520	9.85	520	29.06
				530	9.85	530	29.05
				540	9.85	540	29.03
				550	9.85	550	29.02
				560	9.85	560	29
				570	9.85	570	29
				580	9.85	580	28.98
				590	9.85	590	28.97
				600	9.86	600	28.95
				610	9.85	610	28.94
				620	9.85	620	28.93
				630	9.85	630	28.92
				640	9.86	640	28.9
				650	9.86	650	28.89
				660	9.86	660	28.88
				670	9.85	670	28.87
				680	9.86	680	28.86
				690	9.86	690	28.84
				700	9.85	700	28.83
				710	9.85	710	28.82
				720	9.85	720	28.81
				730	9.85	730	28.79
				740	9.85	740	28.78
				750	9.85	750	28.77
				760	9.85	760	28.76
				770	9.85	770	28.75
				780	9.85	780	28.74
				790	9.85	790	28.72

HRMT-01.WK1		HRMT-02.WK1		HRMT-11.WK1		HRMT-12.WK1	
				800	9.85	800	28.71
				810	9.85	810	28.7
				820	9.85	820	28.69
				830	9.85	830	28.68
				840	9.85	840	28.67
				850	9.85	850	28.66
				860	9.85	860	28.64
				870	9.85	870	28.63
				880	9.85	880	28.62
				890	9.85	890	28.61
				900	9.85	900	28.6
				910	9.85	910	28.59
				920	9.85	920	28.58
				930	9.85	930	28.57
				940	9.85	940	28.56
				950	9.85	950	28.55
				960	9.85	960	28.53
				970	9.85	970	28.52
				980	9.84	980	28.51
				990	9.84	990	28.5
				1000	9.84	1000	28.49
				1015	9.84	1015	28.47
				1030	9.83	1030	28.45
				1045	9.84	1045	28.44
				1060	9.84	1060	28.42
				1075	9.82	1075	28.41
				1090	9.82	1090	28.39
				1105	9.82	1105	28.37
				1120	9.82	1120	28.36
				1135	9.82	1135	28.34
				1150	9.82	1150	28.32
				1165	9.82	1165	28.31
				1180	9.82	1180	28.29
				1195	9.83	1195	28.27
				1210	9.83	1210	28.25
				1225	9.84	1225	28.24
				1240	9.84	1240	28.22
				1255	9.84	1255	28.2
				1270	9.84	1270	28.18
				1285	9.84	1285	28.17
				1300	9.84	1300	28.15
				1315	9.84	1315	28.13
				1330	9.84	1330	28.12
				1345	9.84	1345	28.1
				1360	9.84	1360	28.08
				1375	9.85	1375	28.06
				1390	9.85	1390	28.05
				1405	9.85	1405	28.03
				1420	9.85	1420	28.01

HRMT-01.WK1	HRMT-02.WK1	HRMT-11.WK1		HRMT-12.WK1	
		1435	9.85	1435	28
		1450	9.85	1450	27.98
		1465	9.85	1465	27.97
		1480	9.85	1480	27.95
		1495	9.85	1495	27.93
		1510	9.85	1510	27.92
		1525	9.85	1525	27.9
		1540	9.85	1540	27.88
		1555	9.85	1555	27.86
		1570	9.85	1570	27.85
		1585	9.85	1585	27.83
		1600	9.85	1600	27.82
		1615	9.85	1615	27.8
		1630	9.85	1630	27.79
		1645	9.86	1645	27.77
		1660	9.86	1660	27.75
		1675	9.85	1675	27.74
		1690	9.85	1690	27.72
		1705	9.85	1705	27.7
		1720	9.86	1720	27.68
		1735	9.86	1735	27.67
		1750	9.86	1750	27.65
		1765	9.86	1765	27.63
		1780	9.86	1780	27.62
		1795	9.85	1795	27.6
		1810	9.85	1810	27.58
		1825	9.85	1825	27.56
		1840	9.85	1840	27.55
		1855	9.85	1855	27.53
		1870	9.85	1870	27.52
		1885	9.85	1885	27.5
		1900	9.85	1900	27.49
		1915	9.85	1915	27.47
		1930	9.85	1930	27.45
		1945	9.85	1945	27.43
		1960	9.85	1960	27.42
		1975	9.85	1975	27.4
		1990	9.85	1990	27.38
		2005	9.85	2005	27.37
		2020	9.85	2020	27.35
		2035	9.85	2035	27.34
		2050	9.85	2050	27.32
		2065	9.85	2065	27.3
		2080	9.85	2080	27.29
		2095	9.85	2095	27.27
		2110	9.85	2110	27.25
		2125	9.85	2125	27.24
		2140	9.84	2140	27.22
		2155	9.84	2155	27.21

HRMT-01.WK1	HRMT-02.WK1	HRMT-11.WK1		HRMT-12.WK1	
		2170	9.84	2170	27.19
		2185	9.84	2185	27.17
		2200	9.84	2200	27.16
		2215	9.84	2215	27.14
		2230	9.84	2230	27.12
		2245	9.84	2245	27.11
		2260	9.84	2260	27.09
		2275	9.84	2275	27.08
		2290	9.84	2290	27.06
		2305	9.84	2305	27.05
		2320	9.84	2320	27.03
		2335	9.84	2335	27.02
		2350	9.84	2350	27
		2365	9.84	2365	26.98
		2380	9.84	2380	26.97
		2395	9.84	2395	26.95
		2410	9.84	2410	26.94
		2425	9.84	2425	26.92
		2440	9.84	2440	26.91
		2455	9.84	2455	26.89
		2470	9.84	2470	26.87
		2485	9.84	2485	26.86
		2500	9.84	2500	26.84
		2515	9.84	2515	26.82
		2530	9.84	2530	26.81
		2545	9.84	2545	26.79
		2560	9.84	2560	26.78
		2575	9.84	2575	26.76
		2590	9.84	2590	26.74
		2605	9.84	2605	26.73
		2620	9.8	2620	26.71
		2635	9.8	2635	26.7
		2650	9.8	2650	26.68
		2665	9.8	2665	26.67
		2680	9.8	2680	26.65
		2695	9.8	2695	26.63
		2710	9.8	2710	26.62
		2725	9.8	2725	26.6
		2740	9.8	2740	26.58
		2755	9.8	2755	26.57
		2770	9.8	2770	26.55
		2785	9.8	2785	26.54
		2800	9.8	2800	26.52
		2815	9.8	2815	26.51
		2830	9.8	2830	26.49
		2845	9.8	2845	26.48
		2860	9.8	2860	26.46
		2875	9.8	2875	26.45
		2890	9.8	2890	26.43

HRMT-01.WK1	HRMT-02.WK1	HRMT-11.WK1		HRMT-12.WK1	
		2905	9.81	2905	26.42
		2920	9.81	2920	26.4
		2935	9.81	2935	26.39
		2950	9.81	2950	26.37
		2965	9.81	2965	26.35
		2980	9.81	2980	26.34
		2995	9.81	2995	26.32
		3010	9.81	3010	26.31
		3025	9.81	3025	26.29
		3040	9.81	3040	26.28
		3055	9.81	3055	26.26
		3070	9.81	3070	26.25
		3085	9.81	3085	26.23
		3100	9.81	3100	26.22
		3115	9.81	3115	26.2
		3130	9.81	3130	26.19
		3145	9.81	3145	26.17
		3160	9.81	3160	26.16
		3175	9.81	3175	26.14
		3190	9.81	3190	26.12
		3205	9.81	3205	26.11
		3220	9.81	3220	26.1
		3235	9.81	3235	26.08
		3250	9.81	3250	26.06
		3265	9.81	3265	26.05
		3280	9.81	3280	26.03
		3295	9.81	3295	26.02
		3310	9.81	3310	26
		3325	9.81	3325	25.99
		3340	9.81	3340	25.97
		3355	9.81	3355	25.96
		3370	9.81	3370	25.94
		3385	9.81	3385	25.93
		3400	9.8	3400	25.91
		3415	9.8	3415	25.9
		3430	9.8	3430	25.88
		3445	9.8	3445	25.86
		3460	9.8	3460	25.85
		3475	9.8	3475	25.83
		3490	9.8	3490	25.82
		3505	9.8	3505	25.8
		3520	9.8	3520	25.79
		3535	9.81	3535	25.78
		3550	9.81	3550	25.76
		3565	9.81	3565	25.75
		3580	9.81	3580	25.73
		3595	9.81	3595	25.72
		3610	9.81	3610	25.7
		3625	9.81	3625	25.68

HRMT-01.WK1		HRMT-02.WK1		HRMT-11.WK1		HRMT-12.WK1	
				3640	9.81	3640	25.67
				3655	9.81	3655	25.65
				3670	9.81	3670	25.64
				3685	9.81	3685	25.62
				3700	9.81	3700	25.61
				3715	9.81	3715	25.6
				3730	9.81	3730	25.58
				3745	9.81	3745	25.56
				3760	9.81	3760	25.55
				3775	9.81	3775	25.54
				3790	9.81	3790	25.52
				3805	9.79	3805	25.51
				3820	9.79	3820	25.49
				3835	9.79	3835	25.48
				3850	9.79	3850	25.46
				3865	9.79	3865	25.45
				3880	9.79	3880	25.43
				3895	9.79	3895	25.42
				3910	9.79	3910	25.4
				3925	9.79	3925	25.39
				3940	9.79	3940	25.37
				3955	9.79	3955	25.36
				3970	9.79	3970	25.34
				3985	9.79	3985	25.33
				4000	9.79	4000	25.31
				4015	9.79	4015	25.3
				4030	9.8	4030	25.28
				4045	9.79	4045	25.27
				4060	9.79	4060	25.25
				4075	9.79	4075	25.24
				4090	9.79	4090	25.22
				4105	9.79	4105	25.21
				4120	9.79	4120	25.19
				4135	9.79	4135	25.17
				4150	9.78	4150	25.16
				4165	9.78	4165	25.14
				4180	9.78	4180	25.13
				4195	9.78	4195	25.11
				4210	9.78	4210	25.1
				4225	9.78	4225	25.09
				4240	9.78	4240	25.07
				4255	9.78	4255	25.05
				4270	9.78	4270	25.04
				4285	9.79	4285	25.03
				4300	9.78	4300	25.01
				4315	9.79	4315	24.99
				4330	9.79	4330	24.98
				4345	9.78	4345	24.97
				4360	9.78	4360	24.95

HRMT-01.WK1	HRMT-02.WK1	HRMT-11.WK1		HRMT-12.WK1	
		4375	9.78	4375	24.93
		4390	9.78	4390	24.92
		4405	9.78	4405	24.91
		4420	9.78	4420	24.89
		4435	9.78	4435	24.88
		4450	9.78	4450	24.86
		4465	9.78	4465	24.84
		4480	9.78	4480	24.83
		4495	9.78	4495	24.82
		4510	9.78	4510	24.8
		4525	9.78	4525	24.79
		4540	9.78	4540	24.77
		4555	9.78	4555	24.76
		4570	9.78	4570	24.74
		4585	9.78	4585	24.73
		4600	9.78	4600	24.71
		4615	9.78	4615	24.7
		4630	9.78	4630	24.68
		4645	9.78	4645	24.67
		4660	9.78	4660	24.65
		4675	9.78	4675	24.64
		4690	9.78	4690	24.62
		4705	9.78	4705	24.61
		4720	9.78	4720	24.59
		4735	9.78	4735	24.58
		4750	9.78	4750	24.56
		4765	9.78	4765	24.55
		4780	9.78	4780	24.53
		4795	9.78	4795	24.52
		4810	9.78	4810	24.51
		4825	9.78	4825	24.49
		4840	9.78	4840	24.48
		4855	9.77	4855	24.46
		4870	9.77	4870	24.45
		4885	9.77	4885	24.43
		4900	9.77	4900	24.42
		4915	9.77	4915	24.4
		4930	9.77	4930	24.39
		4945	9.77	4945	24.37
		4960	9.77	4960	24.36
		4975	9.77	4975	24.34
		4990	9.77	4990	24.33
		5005	9.77	5005	24.31
		5020	9.77	5020	24.3
		5035	9.77	5035	24.28
		5050	9.77	5050	24.27
		5065	9.76	5065	24.25
		5080	9.77	5080	24.24
		5095	9.76	5095	24.23

HRMT-01.WK1

HRMT-02.WK1

HRMT-11.WK1		HRMT-12.WK1	
5110	9.76	5110	24.21
5125	9.76	5125	24.2
5140	9.76	5140	24.18
5155	9.76	5155	24.17
5170	9.76	5170	24.15
5185	9.76	5185	24.14
5200	9.75	5200	24.12
5215	9.75	5215	24.11
5230	9.75	5230	24.09
5245	9.75	5245	24.08
5260	9.75	5260	24.07
5275	9.75	5275	24.05
5290	9.75	5290	24.04
5305	9.75	5305	24.03
5320	9.75	5320	24.01
5335	9.74	5335	24
5350	9.74	5350	23.98
5365	9.74	5365	23.97
5380	9.74	5380	23.96
5395	9.74	5395	23.94
5410	9.74	5410	23.93
5425	9.71	5425	23.91
5440	9.69	5440	23.9
5455	9.68	5455	23.89
5470	9.67	5470	23.88
5485	9.65	5485	23.86
5500	9.62	5500	23.85
5515	9.6	5515	23.84
5530	9.6	5530	23.82
5545	9.55	5545	23.81
5560	9.47	5560	23.79
5575	9.41	5575	23.77
5590	9.38	5590	23.76
5605	9.36	5605	23.75
5620	9.39	5620	23.73
5635	9.42	5635	23.72
5650	9.46	5650	23.7
5665	9.48	5665	23.69
5680	9.5	5680	23.67
5695	9.52	5695	23.66
5710	9.54	5710	23.64
5725	9.56	5725	23.63
5740	9.59	5740	23.62
5755	9.61	5755	23.6
END		END	

RAW DATA

MW013 AND BAROMETRIC PROBE

Filename: HRM2-11.wk1/CR675
SE1000C
Environmental Logger
01/19 15:03

Unit# 00001 Test 1

Setups:	INPUT 1	INPUT 2
Type	Function	Level (F)
Mode		TOC
I.D.	13001	25923
Reference		4.19
Linearity	0	0
Scale factor	15.81	19.97
Offset	0.3	0.01
Delay mSEC	50	50

Step 0 01/09 11:00:01

MW013 during pumping and recovery

Barometric Probe during pumping and recovery

Elapsed Time	INPUT 1	INPUT 2
0	14.612	4.24
0.0033	14.614	4.24
0.0066	14.612	4.24
0.01	14.612	4.24
0.0133	14.612	4.24
0.0166	14.612	4.24
0.02	14.612	4.24
0.0233	14.612	4.24
0.0266	14.612	4.24
0.03	14.612	4.24
0.0333	14.612	4.24
0.05	14.612	4.24
0.0666	14.612	4.24
0.0833	14.612	4.24
0.1	14.61	4.24
0.1166	14.612	4.24
0.1333	14.612	4.24
0.15	14.612	4.24
0.1666	14.61	4.24
0.1833	14.612	4.24
0.2	14.612	4.24
0.2166	14.612	4.24
0.2333	14.612	4.24
0.25	14.612	4.24
0.2666	14.61	4.24
0.2833	14.612	4.24
0.3	14.61	4.24
0.3166	14.612	4.24
0.3333	14.61	4.24
0.4166	14.61	4.24
0.5	14.61	4.24
0.5833	14.612	4.24
0.6666	14.61	4.246
0.75	14.61	4.246
0.8333	14.61	4.24
0.9166	14.61	4.24
1	14.61	4.24
1.0833	14.612	4.24
1.1666	14.61	4.24
1.25	14.61	4.24
1.3333	14.612	4.24
1.4166	14.61	4.24
1.5	14.61	4.24
1.5833	14.61	4.24
1.6666	14.61	4.246
1.75	14.61	4.246
1.8333	14.61	4.24
1.9166	14.61	4.246
2	14.61	4.246
2.5	14.612	4.246
3	14.612	4.246
3.5	14.612	4.24
4	14.612	4.24
4.5	14.612	4.24
5	14.614	4.24
5.5	14.614	4.24
6	14.614	4.24
6.5	14.614	4.24

Filename: HRM2-01.wk1/CR675
SE1000C
Environmental Logger
01/15 16:11

Unit# 00001 Test 0

INPUT 1: Function

Linearity	0.000
Scale factor	15.810
Offset	0.300
Delay mSEC	50.000

Step 0 12/31 18:00:01

Barometric Probe - background

Elapsed Time	INPUT 1
0	14.43
15	14.437
30	14.441
45	14.441
60	14.446
75	14.45
90	14.446
105	14.448
120	14.448
135	14.448
150	14.446
165	14.448
180	14.448
195	14.45
210	14.452
225	14.456
240	14.459
255	14.463
270	14.459
285	14.463
300	14.467
315	14.465
330	14.472
345	14.472
360	14.476
375	14.474
390	14.474
405	14.474
420	14.472
435	14.469
450	14.467
465	14.474
480	14.472
495	14.474
510	14.476
525	14.474
540	14.476
555	14.48
570	14.48
585	14.478
600	14.472
615	14.469
630	14.463
645	14.461
660	14.459
675	14.456
690	14.456
705	14.461
720	14.463
735	14.463
750	14.461
765	14.459
780	14.459
795	14.459
810	14.456
825	14.456
840	14.454
855	14.456

Filename: HRM2-02.wk1/CR675
SE1000C
Environmental Logger
01/15 16:30

Unit# 00001 Test 0

INPUT 2: Level (F) TOC

Reference	4.190
Linearity	0.000
Scale factor	19.970
Offset	0.010
Delay mSEC	50.000

Step 0 12/31 18:00:01

MW013 - background

Elapsed Time	INPUT 2
0	4.196
15	4.202
30	4.202
45	4.202
60	4.202
75	4.202
90	4.202
105	4.202
120	4.202
135	4.202
150	4.202
165	4.202
180	4.196
195	4.196
210	4.196
225	4.202
240	4.196
255	4.196
270	4.196
285	4.196
300	4.202
315	4.202
330	4.202
345	4.208
360	4.208
375	4.208
390	4.208
405	4.215
420	4.215
435	4.215
450	4.215
465	4.215
480	4.221
495	4.221
510	4.227
525	4.227
540	4.234
555	4.234
570	4.24
585	4.24
600	4.24
615	4.246
630	4.246
645	4.246
660	4.246
675	4.246
690	4.246
705	4.246
720	4.246
735	4.253
750	4.246
765	4.253
780	4.253
795	4.253
810	4.246
825	4.246
840	4.246
855	4.246

Elapsed Time	INPUT 1	INPUT 2
7	14.614	4.246
7.5	14.614	4.246
8	14.614	4.246
8.5	14.614	4.246
9	14.617	4.246
9.5	14.617	4.24
10	14.617	4.24
12	14.621	4.24
14	14.621	4.246
16	14.623	4.246
18	14.623	4.246
20	14.625	4.246
22	14.625	4.24
24	14.625	4.24
26	14.623	4.246
28	14.625	4.246
30	14.625	4.24
32	14.623	4.246
34	14.623	4.246
36	14.621	4.246
38	14.621	4.246
40	14.619	4.246
42	14.617	4.246
44	14.619	4.246
46	14.617	4.246
48	14.617	4.246
50	14.614	4.246
52	14.614	4.246
54	14.614	4.246
56	14.614	4.246
58	14.612	4.246
60	14.61	4.246
62	14.61	4.24
64	14.61	4.24
66	14.608	4.24
68	14.606	4.24
70	14.606	4.24
72	14.604	4.24
74	14.601	4.24
76	14.601	4.24
78	14.601	4.24
80	14.597	4.24
82	14.597	4.24
84	14.597	4.24
86	14.595	4.24
88	14.597	4.24
90	14.597	4.24
92	14.595	4.24
94	14.595	4.24
96	14.595	4.234
98	14.595	4.234
100	14.593	4.234
110	14.591	4.234
120	14.593	4.227
130	14.591	4.221
140	14.593	4.221
150	14.593	4.227
160	14.595	4.227
170	14.593	4.227
180	14.593	4.234
190	14.597	4.234
200	14.597	4.234
210	14.597	4.234
220	14.597	4.234
230	14.593	4.227
240	14.593	4.227
250	14.593	4.227
260	14.593	4.234
270	14.588	4.234
280	14.584	4.234
290	14.582	4.24
300	14.578	4.24
310	14.578	4.246
320	14.571	4.24
330	14.571	4.246
340	14.569	4.246
350	14.569	4.246
360	14.567	4.253
370	14.563	4.253
380	14.56	4.253
390	14.558	4.259
400	14.554	4.259
410	14.552	4.265

Elapsed Time	INPUT 1
870	14.459
885	14.465
900	14.469
915	14.476
930	14.482
945	14.493
960	14.508
975	14.524
990	14.537
1005	14.549
1020	14.563
1035	14.567
1050	14.565
1065	14.567
1080	14.567
1095	14.567
1110	14.567
1125	14.565
1140	14.563
1155	14.563
1170	14.56
1185	14.556
1200	14.554
1215	14.549
1230	14.552
1245	14.552
1260	14.552
1275	14.552
1290	14.556
1305	14.554
1320	14.549
1335	14.547
1350	14.537
1365	14.526
1380	14.515
1395	14.506
1410	14.493
1425	14.485
1440	14.476
1455	14.467
1470	14.459
1485	14.454
1500	14.45
1515	14.443
1530	14.439
1545	14.433
1560	14.428
1575	14.424
1590	14.424
1605	14.424
1620	14.422
1635	14.422
1650	14.42
1665	14.42
1680	14.422
1695	14.42
1710	14.417
1725	14.409
1740	14.402
1755	14.4
1770	14.391
1785	14.387
1800	14.381
1815	14.372
1830	14.363
1845	14.355
1860	14.35
1875	14.346
1890	14.342
1905	14.34
1920	14.333
1935	14.331
1950	14.331
1965	14.329
1980	14.327
1995	14.324
2010	14.32
2025	14.32
2040	14.32
2055	14.322
2070	14.322
2085	14.327
2100	14.329

Elapsed Time	INPUT 2
870	4.246
885	4.246
900	4.246
915	4.253
930	4.253
945	4.253
960	4.253
975	4.259
990	4.259
1005	4.259
1020	4.259
1035	4.265
1050	4.265
1065	4.259
1080	4.259
1095	4.259
1110	4.253
1125	4.253
1140	4.253
1155	4.246
1170	4.24
1185	4.24
1200	4.234
1215	4.234
1230	4.227
1245	4.227
1260	4.227
1275	4.227
1290	4.227
1305	4.221
1320	4.227
1335	4.227
1350	4.227
1365	4.227
1380	4.227
1395	4.234
1410	4.234
1425	4.234
1440	4.234
1455	4.234
1470	4.234
1485	4.234
1500	4.234
1515	4.234
1530	4.24
1545	4.24
1560	4.24
1575	4.24
1590	4.24
1605	4.24
1620	4.246
1635	4.246
1650	4.246
1665	4.246
1680	4.246
1695	4.253
1710	4.253
1725	4.246
1740	4.253
1755	4.253
1770	4.253
1785	4.253
1800	4.253
1815	4.253
1830	4.246
1845	4.246
1860	4.246
1875	4.246
1890	4.246
1905	4.24
1920	4.246
1935	4.24
1950	4.246
1965	4.246
1980	4.246
1995	4.253
2010	4.253
2025	4.253
2040	4.253
2055	4.253
2070	4.253
2085	4.253
2100	4.253

Elapsed Time	INPUT 1	INPUT 2
420	14.549	4.265
430	14.549	4.272
440	14.543	4.272
450	14.537	4.272
460	14.534	4.272
470	14.537	4.272
480	14.532	4.272
490	14.532	4.265
500	14.53	4.265
510	14.528	4.272
520	14.528	4.272
530	14.528	4.272
540	14.53	4.278
550	14.528	4.278
560	14.521	4.272
570	14.519	4.272
580	14.517	4.278
590	14.515	4.278
600	14.508	4.278
610	14.502	4.278
620	14.502	4.278
630	14.498	4.272
640	14.493	4.278
650	14.491	4.278
660	14.491	4.278
670	14.491	4.278
680	14.489	4.284
690	14.489	4.284
700	14.489	4.278
710	14.487	4.284
720	14.487	4.284
730	14.487	4.284
740	14.485	4.29
750	14.48	4.29
760	14.478	4.29
770	14.476	4.29
780	14.474	4.29
790	14.467	4.29
800	14.467	4.29
810	14.465	4.29
820	14.463	4.29
830	14.461	4.29
840	14.461	4.29
850	14.459	4.297
860	14.454	4.297
870	14.45	4.297
880	14.448	4.297
890	14.446	4.297
900	14.443	4.297
910	14.443	4.297
920	14.441	4.297
930	14.439	4.297
940	14.435	4.297
950	14.437	4.297
960	14.437	4.297
970	14.435	4.303
980	14.428	4.303
990	14.43	4.297
1000	14.426	4.297
1015	14.422	4.297
1030	14.415	4.297
1045	14.402	4.297
1060	14.394	4.29
1075	14.385	4.284
1090	14.376	4.278
1105	14.374	4.278
1120	14.372	4.278
1135	14.374	4.278
1150	14.376	4.278
1165	14.381	4.272
1180	14.385	4.278
1195	14.389	4.278
1210	14.394	4.278
1225	14.394	4.278
1240	14.394	4.284
1255	14.391	4.284
1270	14.389	4.284
1285	14.385	4.284
1300	14.383	4.284
1315	14.391	4.284
1330	14.398	4.278
1345	14.407	4.272
1360	14.422	4.272

Elapsed Time	INPUT 1
2115	14.329
2130	14.333
2145	14.337
2160	14.342
2175	14.344
2190	14.346
2205	14.346
2220	14.355
2235	14.357
2250	14.366
2265	14.372
2280	14.376
2295	14.374
2310	14.378
2325	14.385
2340	14.396
2355	14.411
2370	14.424
2385	14.441
2400	14.459
2415	14.478
2430	14.504
2445	14.524
2460	14.541
2475	14.558
2490	14.575
2505	14.586
2520	14.597
2535	14.601
2550	14.599
2565	14.599
2580	14.599
2595	14.601
2610	14.606
2625	14.606
2640	14.601
2655	14.597
2670	14.599
2685	14.601
2700	14.595
2715	14.597
2730	14.588
2745	14.582
2760	14.58
2775	14.575
2790	14.569
2805	14.567
2820	14.565
2835	14.558
2850	14.556
2865	14.554
2880	14.554
2895	14.547
2910	14.545
2925	14.545
2940	14.543
2955	14.541
2970	14.543
2985	14.543
3000	14.545
3015	14.545
3030	14.541
3045	14.541
3060	14.537
3075	14.534
3090	14.526
3105	14.521
3120	14.521
3135	14.521
3150	14.519
3165	14.519
3180	14.515
3195	14.513
3210	14.511
3225	14.513
3240	14.508
3255	14.502
3270	14.498
3285	14.491
3300	14.487
3315	14.487
3330	14.485
3345	14.48

Elapsed Time	INPUT 2
2115	4.253
2130	4.253
2145	4.253
2160	4.259
2175	4.253
2190	4.253
2205	4.259
2220	4.259
2235	4.259
2250	4.259
2265	4.259
2280	4.259
2295	4.265
2310	4.265
2325	4.265
2340	4.265
2355	4.259
2370	4.259
2385	4.253
2400	4.253
2415	4.253
2430	4.253
2445	4.259
2460	4.259
2475	4.259
2490	4.265
2505	4.259
2520	4.259
2535	4.259
2550	4.259
2565	4.253
2580	4.253
2595	4.253
2610	4.253
2625	4.253
2640	4.253
2655	4.246
2670	4.246
2685	4.246
2700	4.246
2715	4.246
2730	4.246
2745	4.246
2760	4.246
2775	4.246
2790	4.246
2805	4.246
2820	4.246
2835	4.24
2850	4.24
2865	4.24
2880	4.234
2895	4.234
2910	4.234
2925	4.227
2940	4.227
2955	4.227
2970	4.221
2985	4.221
3000	4.221
3015	4.221
3030	4.221
3045	4.215
3060	4.215
3075	4.215
3090	4.208
3105	4.202
3120	4.202
3135	4.196
3150	4.196
3165	4.19
3180	4.19
3195	4.183
3210	4.183
3225	4.183
3240	4.183
3255	4.183
3270	4.177
3285	4.177
3300	4.177
3315	4.171
3330	4.171
3345	4.171

Elapsed Time	INPUT 1	INPUT 2
1375	14.437	4.29
1390	14.448	4.29
1405	14.452	4.297
1420	14.461	4.297
1435	14.465	4.297
1450	14.472	4.303
1465	14.472	4.303
1480	14.48	4.297
1495	14.487	4.297
1510	14.489	4.297
1525	14.489	4.297
1540	14.491	4.29
1555	14.493	4.29
1570	14.487	4.297
1585	14.478	4.29
1600	14.474	4.29
1615	14.472	4.29
1630	14.472	4.29
1645	14.472	4.29
1660	14.478	4.29
1675	14.474	4.29
1690	14.467	4.29
1705	14.461	4.29
1720	14.459	4.29
1735	14.456	4.29
1750	14.45	4.297
1765	14.45	4.297
1780	14.446	4.297
1795	14.45	4.297
1810	14.454	4.303
1825	14.454	4.303
1840	14.452	4.309
1855	14.448	4.309
1870	14.448	4.309
1885	14.45	4.316
1900	14.454	4.316
1915	14.456	4.322
1930	14.461	4.328
1945	14.463	4.328
1960	14.465	4.328
1975	14.467	4.335
1990	14.469	4.335
2005	14.472	4.335
2020	14.476	4.341
2035	14.48	4.347
2050	14.485	4.347
2065	14.487	4.347
2080	14.489	4.354
2095	14.493	4.36
2110	14.489	4.36
2125	14.487	4.36
2140	14.487	4.36
2155	14.493	4.366
2170	14.493	4.366
2185	14.498	4.366
2200	14.498	4.372
2215	14.5	4.372
2230	14.502	4.372
2245	14.506	4.379
2260	14.506	4.379
2275	14.508	4.385
2290	14.504	4.385
2305	14.506	4.379
2320	14.508	4.385
2335	14.508	4.385
2350	14.508	4.391
2365	14.511	4.391
2380	14.511	4.398
2395	14.513	4.398
2410	14.513	4.404
2425	14.515	4.404
2440	14.515	4.404
2455	14.515	4.404
2470	14.515	4.41
2485	14.513	4.41
2500	14.513	4.41
2515	14.511	4.41
2530	14.508	4.41
2545	14.508	4.41
2560	14.513	4.41
2575	14.517	4.417
2590	14.519	4.417
2605	14.524	4.423

Elapsed Time	INPUT 1
3360	14.478
3375	14.48
3390	14.48
3405	14.478
3420	14.476
3435	14.469
3450	14.469
3465	14.467
3480	14.459
3495	14.454
3510	14.459
3525	14.456
3540	14.45
3555	14.448
3570	14.448
3585	14.448
3600	14.446
3615	14.446
3630	14.441
3645	14.443
3660	14.443
3675	14.441
3690	14.443
3705	14.443
3720	14.446
3735	14.441
3750	14.441
3765	14.441
3780	14.443
3795	14.448
3810	14.448
3825	14.45
3840	14.45
3855	14.452
3870	14.452
3885	14.456
3900	14.459
3915	14.459
3930	14.456
3945	14.454
3960	14.45
3975	14.45
3990	14.452
4005	14.45
4020	14.446
4035	14.448
4050	14.448
4065	14.443
4080	14.443
4095	14.446
4110	14.443
4125	14.446
4140	14.443
4155	14.446
4170	14.446
4185	14.446
4200	14.448
4215	14.45
4230	14.448
4245	14.443
4260	14.443
4275	14.443
4290	14.441
4305	14.443
4320	14.443
4335	14.443
4350	14.446
4365	14.446
4380	14.446
4395	14.446
4410	14.443
4425	14.446
4440	14.448
4455	14.448
4470	14.45
4485	14.448
4500	14.448
4515	14.448
4530	14.448
4545	14.45
4560	14.452
4575	14.454
4590	14.45

Elapsed Time	INPUT 2
3360	4.164
3375	4.171
3390	4.171
3405	4.171
3420	4.171
3435	4.171
3450	4.171
3465	4.171
3480	4.164
3495	4.164
3510	4.164
3525	4.164
3540	4.164
3555	4.164
3570	4.158
3585	4.164
3600	4.164
3615	4.164
3630	4.164
3645	4.164
3660	4.164
3675	4.164
3690	4.171
3705	4.171
3720	4.171
3735	4.177
3750	4.171
3765	4.177
3780	4.177
3795	4.177
3810	4.183
3825	4.183
3840	4.19
3855	4.19
3870	4.19
3885	4.19
3900	4.19
3915	4.19
3930	4.19
3945	4.19
3960	4.19
3975	4.19
3990	4.19
4005	4.183
4020	4.183
4035	4.177
4050	4.177
4065	4.177
4080	4.171
4095	4.171
4110	4.164
4125	4.164
4140	4.164
4155	4.164
4170	4.164
4185	4.164
4200	4.164
4215	4.164
4230	4.164
4245	4.164
4260	4.158
4275	4.158
4290	4.158
4305	4.158
4320	4.152
4335	4.152
4350	4.152
4365	4.152
4380	4.145
4395	4.145
4410	4.145
4425	4.145
4440	4.139
4455	4.139
4470	4.133
4485	4.133
4500	4.126
4515	4.126
4530	4.12
4545	4.12
4560	4.12
4575	4.114
4590	4.114

Elapsed Time	INPUT 1	INPUT 2
2620	14.526	4.423
2635	14.53	4.429
2650	14.53	4.429
2665	14.532	4.436
2680	14.528	4.436
2695	14.53	4.436
2710	14.532	4.436
2725	14.534	4.442
2740	14.541	4.442
2755	14.545	4.442
2770	14.552	4.442
2785	14.565	4.448
2800	14.571	4.448
2815	14.573	4.454
2830	14.58	4.448
2845	14.586	4.454
2860	14.591	4.454
2875	14.593	4.454
2890	14.595	4.461
2905	14.599	4.454
2920	14.601	4.454
2935	14.601	4.448
2950	14.601	4.448
2965	14.599	4.448
2980	14.599	4.448
2995	14.597	4.442
3010	14.595	4.442
3025	14.595	4.436
3040	14.595	4.436
3055	14.591	4.436
3070	14.584	4.429
3085	14.584	4.429
3100	14.584	4.423
3115	14.586	4.429
3130	14.582	4.423
3145	14.58	4.429
3160	14.582	4.429
3175	14.58	4.423
3190	14.58	4.429
3205	14.58	4.436
3220	14.575	4.436
3235	14.571	4.436
3250	14.567	4.436
3265	14.565	4.442
3280	14.563	4.442
3295	14.563	4.442
3310	14.565	4.448
3325	14.56	4.448
3340	14.558	4.454
3355	14.556	4.448
3370	14.554	4.454
3385	14.554	4.461
3400	14.554	4.461
3415	14.549	4.467
3430	14.549	4.467
3445	14.549	4.467
3460	14.547	4.473
3475	14.547	4.473
3490	14.547	4.473
3505	14.545	4.473
3520	14.545	4.48
3535	14.541	4.473
3550	14.537	4.473
3565	14.534	4.473
3580	14.534	4.473
3595	14.534	4.473
3610	14.532	4.473
3625	14.532	4.473
3640	14.53	4.473
3655	14.53	4.473
3670	14.526	4.467
3685	14.526	4.473
3700	14.521	4.473
3715	14.519	4.467
3730	14.515	4.467
3745	14.508	4.467
3760	14.502	4.461
3775	14.502	4.454
3790	14.504	4.461
3805	14.504	4.454
3820	14.506	4.454
3835	14.506	4.461
3850	14.513	4.461

Elapsed Time	INPUT 1
4605	14.45
4620	14.448
4635	14.452
4650	14.454
4665	14.456
4680	14.454
4695	14.454
4710	14.452
4725	14.452
4740	14.452
4755	14.452
4770	14.45
4785	14.45
4800	14.45
4815	14.45
4830	14.45
4845	14.45
4860	14.446
4875	14.443
4890	14.435
4905	14.437
4920	14.435
4935	14.43
4950	14.428
4965	14.424
4980	14.417
4995	14.415
5010	14.411
5025	14.409
5040	14.4
5055	14.4
5070	14.396
5085	14.391
5100	14.389
5115	14.383
5130	14.383
5145	14.391
5160	14.387
5175	14.387
5190	14.389
5205	14.389
5220	14.394
5235	14.396
5250	14.4
5265	14.402
5280	14.404
5295	14.407
5310	14.407
5325	14.411
5340	14.409
5355	14.409
5370	14.407
5385	14.4
5400	14.391
5415	14.389
5430	14.389
5445	14.387
5460	14.378
5475	14.372
5490	14.37
5505	14.372
5520	14.376
5535	14.376
5550	14.378
5565	14.378
5580	14.376
5595	14.381
5610	14.383
5625	14.383
5640	14.383
5655	14.381
5670	14.383
5685	14.381
5700	14.378
5715	14.376
5730	14.376
5745	14.376
5760	14.372
5775	14.37
5790	14.366
5805	14.361
5820	14.355
5835	14.35

Elapsed Time	INPUT 2
4605	4.108
4620	4.108
4635	4.108
4650	4.101
4665	4.101
4680	4.101
4695	4.101
4710	4.095
4725	4.095
4740	4.089
4755	4.089
4770	4.089
4785	4.082
4800	4.082
4815	4.082
4830	4.076
4845	4.07
4860	4.07
4875	4.063
4890	4.057
4905	4.051
4920	4.044
4935	4.032
4950	4.026
4965	4.013
4980	4.007
4995	3.994
5010	3.988
5025	3.975
5040	3.962
5055	3.956
5070	3.95
5085	3.937
5100	3.931
5115	3.925
5130	3.918
5145	3.899
5160	3.88
5175	3.868
5190	3.862
5205	3.843
5220	3.83
5235	3.843
5250	3.843
5265	3.843
5280	3.843
5295	3.843
5310	3.83
5325	3.836
5340	3.843
5355	3.843
5370	3.836
5385	3.83
5400	3.824
5415	3.817
5430	3.811
5445	3.805
5460	3.799
5475	3.786
5490	3.78
5505	3.773
5520	3.773
5535	3.767
5550	3.767
5565	3.767
5580	3.767
5595	3.761
5610	3.761
5625	3.761
5640	3.761
5655	3.761
5670	3.761
5685	3.761
5700	3.754
5715	3.754
5730	3.754
5745	3.748
5760	3.748
5775	3.742
5790	3.742
5805	3.735
5820	3.729
5835	3.723

Elapsed Time	INPUT 1	INPUT 2
3865	14.515	4.467
3880	14.524	4.467
3895	14.524	4.473
3910	14.521	4.473
3925	14.511	4.473
3940	14.504	4.473
3955	14.5	4.467
3970	14.495	4.461
3985	14.495	4.467
4000	14.491	4.467
4015	14.493	4.461
4030	14.498	4.467
4045	14.504	4.467
4060	14.506	4.473
4075	14.508	4.473
4090	14.508	4.48
4105	14.504	4.48
4120	14.5	4.48
4135	14.502	4.48
4150	14.502	4.48
4165	14.502	4.48
4180	14.502	4.48
4195	14.5	4.48
4210	14.5	4.48
4225	14.502	4.48
4240	14.506	4.48
4255	14.511	4.48
4270	14.515	4.48
4285	14.519	4.486
4300	14.526	4.486
4315	14.532	4.486
4330	14.537	4.492
4345	14.534	4.492
4360	14.526	4.492
4375	14.521	4.486
4390	14.524	4.492
4405	14.511	4.486
4420	14.5	4.48
4435	14.491	4.473
4450	14.493	4.473
4465	14.482	4.461
4480	14.485	4.461
4495	14.482	4.454
4510	14.482	4.454
4525	14.489	4.454
4540	14.487	4.454
4555	14.487	4.454
4570	14.48	4.461
4585	14.48	4.454
4600	14.476	4.454
4615	14.469	4.454
4630	14.463	4.448
4645	14.461	4.454
4660	14.456	4.448
4675	14.459	4.448
4690	14.454	4.454
4705	14.456	4.454
4720	14.443	4.454
4735	14.443	4.454
4750	14.441	4.454
4765	14.439	4.454
4780	14.437	4.454
4795	14.435	4.454
4810	14.426	4.454
4825	14.424	4.448
4840	14.417	4.448
4855	14.417	4.448
4870	14.413	4.442
4885	14.413	4.442
4900	14.411	4.436
4915	14.409	4.429
4930	14.409	4.429
4945	14.404	4.429
4960	14.398	4.423
4975	14.396	4.423
4990	14.391	4.417
5005	14.389	4.417
5020	14.385	4.417
5035	14.383	4.417
5050	14.374	4.41
5065	14.37	4.41
5080	14.366	4.404
5095	14.361	4.404

Elapsed Time	INPUT 1
5850	14.344
5865	14.34
5880	14.333
5895	14.329
5910	14.322
5925	14.32
5940	14.32
5955	14.316
5970	14.314
5985	14.309
6000	14.305
6015	14.301
6030	14.296
6045	14.288
6060	14.292
6075	14.29
6090	14.294
6105	14.305
6120	14.294
6135	14.294
6150	14.292
6165	14.29
6180	14.29
6195	14.285
6210	14.29
6225	14.285
6240	14.288
6255	14.285
6270	14.29
6285	14.296
6300	14.307
6315	14.314
6330	14.316
6345	14.331
6360	14.346
6375	14.348
6390	14.348
6405	14.35
6420	14.355
6435	14.357
6450	14.361
6465	14.37
6480	14.374
6495	14.374
6510	14.383
6525	14.389
6540	14.4
6555	14.409
6570	14.415
6585	14.415
6600	14.422
6615	14.428
6630	14.435
6645	14.443
6660	14.45
6675	14.456
6690	14.463
6705	14.463
6720	14.465
6735	14.465
6750	14.469
6765	14.478
6780	14.482
6795	14.485
6810	14.485
6825	14.487
6840	14.487
6855	14.487
6870	14.485
6885	14.482
6900	14.485
6915	14.487
6930	14.485
6945	14.485
6960	14.487
6975	14.487
6990	14.482
7005	14.478
7020	14.48
7035	14.48
7050	14.482
7065	14.482
7080	14.478

Elapsed Time	INPUT 2
5850	3.717
5865	3.71
5880	3.704
5895	3.691
5910	3.685
5925	3.679
5940	3.679
5955	3.672
5970	3.666
5985	3.66
6000	3.653
6015	3.647
6030	3.641
6045	3.635
6060	3.635
6075	3.628
6090	3.628
6105	3.616
6120	3.622
6135	3.616
6150	3.622
6165	3.622
6180	3.635
6195	3.635
6210	3.635
6225	3.641
6240	3.647
6255	3.647
6270	3.647
6285	3.66
6300	3.666
6315	3.666
6330	3.672
6345	3.691
6360	3.698
6375	3.704
6390	3.71
6405	3.717
6420	3.717
6435	3.723
6450	3.729
6465	3.735
6480	3.735
6495	3.742
6510	3.748
6525	3.748
6540	3.754
6555	3.761
6570	3.767
6585	3.773
6600	3.773
6615	3.786
6630	3.786
6645	3.792
6660	3.799
6675	3.805
6690	3.811
6705	3.811
6720	3.817
6735	3.817
6750	3.817
6765	3.824
6780	3.824
6795	3.83
6810	3.83
6825	3.83
6840	3.83
6855	3.83
6870	3.824
6885	3.824
6900	3.824
6915	3.817
6930	3.817
6945	3.817
6960	3.817
6975	3.817
6990	3.811
7005	3.811
7020	3.805
7035	3.805
7050	3.805
7065	3.805
7080	3.805

Elapsed Time	INPUT 1	INPUT 2
5110	14.361	4.404
5125	14.361	4.404
5140	14.357	4.404
5155	14.344	4.391
5170	14.348	4.391
5185	14.344	4.385
5200	14.337	4.385
5215	14.333	4.385
5230	14.329	4.379
5245	14.329	4.379
5260	14.324	4.372
5275	14.32	4.366
5290	14.316	4.366
5305	14.311	4.366
5320	14.309	4.36
5335	14.309	4.36
5350	14.32	4.36
5365	14.303	4.36
5380	14.288	4.347
5395	14.296	4.347
5410	14.292	4.341
5425	14.29	4.341
5440	14.288	4.341
5455	14.277	4.328
5470	14.279	4.328
5485	14.277	4.328
5500	14.259	4.316
5515	14.257	4.316
5530	14.257	4.316
5545	14.27	4.316
5560	14.27	4.316
5575	14.262	4.316
5590	14.262	4.309
5605	14.262	4.309
5620	14.257	4.309
5635	14.253	4.309
5650	14.255	4.309
5665	14.253	4.309
5680	14.255	4.309
5695	14.257	4.309
5710	14.259	4.316
5725	14.264	4.316
5740	14.266	4.316
5755	14.268	4.322
5770	14.268	4.322
5785	14.268	4.328
5800	14.268	4.328
5815	14.264	4.328
5830	14.264	4.328
5845	14.264	4.328
5860	14.262	4.328
5875	14.262	4.328
5890	14.264	4.328
5905	14.266	4.322
5920	14.266	4.328
5935	14.268	4.328
5950	14.27	4.328
5965	14.272	4.328
5980	14.272	4.328
5995	14.275	4.328
6010	14.277	4.335
6025	14.275	4.335
6040	14.279	4.341
6055	14.283	4.347
6070	14.285	4.347
6085	14.288	4.347
6100	14.292	4.354
6115	14.296	4.36
6130	14.303	4.366
6145	14.307	4.372
6160	14.316	4.379
6175	14.324	4.385
6190	14.329	4.391
6205	14.333	4.398
6220	14.337	4.41
6235	14.346	4.41
6250	14.348	4.423
6265	14.353	4.423
6280	14.355	4.429
6295	14.359	4.436
6310	14.361	4.442
6325	14.363	4.448
6340	14.368	4.454

Elapsed Time	INPUT 1
7095	14.491
7110	14.495
7125	14.495
7140	14.5
7155	14.502
7170	14.506
7185	14.504
7200	14.5
7215	14.5
7230	14.504
7245	14.504
7260	14.511
7275	14.511
7290	14.508
7305	14.508
7320	14.506
7335	14.506
7350	14.502
7365	14.498
7380	14.498
7395	14.5
7410	14.498
7425	14.498
7440	14.493
7455	14.493
7470	14.493
7485	14.495
7500	14.493
7515	14.495
7530	14.493
7545	14.498
7560	14.495
7575	14.493
7590	14.491
7605	14.489
7620	14.489
7635	14.489
7650	14.489
7665	14.489
7680	14.489
7695	14.491
7710	14.493
7725	14.495
7740	14.498
7755	14.495
7770	14.495
7785	14.493
7800	14.491
7815	14.489
7830	14.487
7845	14.485
7860	14.485
7875	14.482
7890	14.482
7905	14.485
7920	14.487
7935	14.489
7950	14.487
7965	14.489
7980	14.489
7995	14.491
8010	14.491
8025	14.491
8040	14.491
8055	14.491
8070	14.495
8085	14.498
8100	14.498
8115	14.5
8130	14.502
8145	14.508
8160	14.511
8175	14.511
8190	14.513
8205	14.515
8220	14.515
8235	14.515
8250	14.515
8265	14.513
8280	14.513
8295	14.511
8310	14.508
8325	14.506

Elapsed Time	INPUT 2
7095	3.805
7110	3.805
7125	3.805
7140	3.811
7155	3.811
7170	3.817
7185	3.817
7200	3.817
7215	3.811
7230	3.817
7245	3.817
7260	3.817
7275	3.824
7290	3.824
7305	3.824
7320	3.824
7335	3.824
7350	3.824
7365	3.817
7380	3.817
7395	3.817
7410	3.817
7425	3.817
7440	3.817
7455	3.811
7470	3.811
7485	3.811
7500	3.811
7515	3.811
7530	3.811
7545	3.811
7560	3.811
7575	3.805
7590	3.805
7605	3.805
7620	3.805
7635	3.799
7650	3.799
7665	3.799
7680	3.799
7695	3.799
7710	3.799
7725	3.799
7740	3.805
7755	3.799
7770	3.805
7785	3.805
7800	3.799
7815	3.799
7830	3.799
7845	3.799
7860	3.792
7875	3.792
7890	3.792
7905	3.792
7920	3.792
7935	3.799
7950	3.792
7965	3.799
7980	3.799
7995	3.799
8010	3.799
8025	3.799
8040	3.805
8055	3.805
8070	3.811
8085	3.811
8100	3.811
8115	3.811
8130	3.817
8145	3.824
8160	3.83
8175	3.83
8190	3.836
8205	3.836
8220	3.836
8235	3.843
8250	3.843
8265	3.843
8280	3.843
8295	3.843
8310	3.843
8325	3.843

Elapsed Time	INPUT 1	INPUT 2
6355	14.372	4.454
6370	14.374	4.461
6385	14.374	4.467
6400	14.378	4.467
6415	14.381	4.473
6430	14.383	4.473
6445	14.385	4.48
6460	14.387	4.48
6475	14.391	4.48
6490	14.394	4.486
6505	14.396	4.492
6520	14.4	4.492
6535	14.4	4.492
6550	14.402	4.492
6565	14.402	4.492
6580	14.402	4.492
6595	14.402	4.492
6610	14.404	4.492
6625	14.404	4.499
6640	14.407	4.499
6655	14.409	4.499
6670	14.411	4.499
6685	14.411	4.505
6700	14.417	4.505
6715	14.417	4.511
6730	14.422	4.505
6745	14.42	4.511
6760	14.422	4.511
6775	14.422	4.511
6790	14.422	4.511
6805	14.422	4.511
6820	14.417	4.505
6835	14.415	4.505
6850	14.413	4.505
6865	14.409	4.505
6880	14.409	4.505
6895	14.404	4.505
6910	14.404	4.505
6925	14.402	4.505
6940	14.398	4.505
6955	14.4	4.505
6970	14.4	4.505
6985	14.402	4.505
7000	14.396	4.505
7015	14.391	4.505
7030	14.385	4.505
7045	14.381	4.505
7060	14.383	4.505
7075	14.391	4.499
7090	14.402	4.499
7105	14.415	4.499
7120	14.43	4.499
7135	14.452	4.499
7150	14.48	4.499
7165	14.504	4.492
7180	14.526	4.492
7195	14.53	4.486
7210	14.541	4.486
7225	14.547	4.486
7240	14.552	4.486
7255	14.554	4.473
7270	14.56	4.473
7285	14.565	4.467
7300	14.569	4.467
7315	14.567	4.467
7330	14.565	4.461
7345	14.556	4.461
7360	14.549	4.461
7375	14.541	4.454
7390	14.532	4.448
7405	14.524	4.448
7420	14.517	4.442
7435	14.511	4.442
7450	14.506	4.436
7465	14.504	4.436
7480	14.5	4.429
7495	14.5	4.429
7510	14.495	4.429
7525	14.491	4.423
7540	14.487	4.423
7555	14.487	4.423
7570	14.485	4.423
7585	14.478	4.423

Elapsed Time	INPUT 1
8340	14.504
8355	14.5
8370	14.498
8385	14.495
8400	14.495
8415	14.493
8430	14.495
8445	14.498
8460	14.5
8475	14.498
8490	14.5
8505	14.498
8520	14.498
8535	14.495
8550	14.493
8565	14.489
8580	14.491
8595	14.489
8610	14.487
8625	14.487
8640	14.48
8655	14.476
8670	14.472
8685	14.469
8700	14.467
8715	14.463
8730	14.461
8745	14.459
8760	14.456
8775	14.454
8790	14.454
8805	14.452
8820	14.45
8835	14.446
8850	14.443
8865	14.441
8880	14.439
8895	14.435
8910	14.426
8925	14.42
8940	14.417
8955	14.417
8970	14.417
8985	14.417
9000	14.415
9015	14.407
9030	14.398
9045	14.385
9060	14.376
9075	14.37
9090	14.366
9105	14.361
9120	14.366
9135	14.359
9150	14.355
9165	14.355
9180	14.355
9195	14.357
9210	14.357
9225	14.357
9240	14.361
9255	14.368
9270	14.374
9285	14.385
9300	14.391
9315	14.398
9330	14.402
9345	14.404
9360	14.409
9375	14.411
9390	14.413
9405	14.413
9420	14.417
9435	14.415
9450	14.413
9465	14.415
9480	14.413
9495	14.409
9510	14.413
9525	14.42
9540	14.422
9555	14.426
9570	14.433

Elapsed Time	INPUT 2
8340	3.836
8355	3.843
8370	3.836
8385	3.83
8400	3.83
8415	3.836
8430	3.824
8445	3.83
8460	3.83
8475	3.83
8490	3.83
8505	3.83
8520	3.836
8535	3.836
8550	3.836
8565	3.836
8580	3.843
8595	3.843
8610	3.843
8625	3.843
8640	3.843
8655	3.849
8670	3.849
8685	3.849
8700	3.849
8715	3.849
8730	3.855
8745	3.855
8760	3.855
8775	3.855
8790	3.855
8805	3.855
8820	3.862
8835	3.862
8850	3.862
8865	3.862
8880	3.862
8895	3.862
8910	3.868
8925	3.868
8940	3.868
8955	3.868
8970	3.874
8985	3.874
9000	3.874
9015	3.88
9030	3.874
9045	3.874
9060	3.874
9075	3.874
9090	3.874
9105	3.874
9120	3.874
9135	3.874
9150	3.874
9165	3.88
9180	3.88
9195	3.88
9210	3.88
9225	3.887
9240	3.887
9255	3.887
9270	3.88
9285	3.887
9300	3.88
9315	3.887
9330	3.887
9345	3.887
9360	3.887
9375	3.887
9390	3.887
9405	3.893
9420	3.893
9435	3.893
9450	3.893
9465	3.899
9480	3.906
9495	3.906
9510	3.906
9525	3.906
9540	3.906
9555	3.906
9570	3.912

Elapsed Time	INPUT 1	INPUT 2
7600	14.474	4.423
7615	14.472	4.417
7630	14.469	4.417
7645	14.467	4.417
7660	14.465	4.417
7675	14.465	4.417
7690	14.461	4.417
7705	14.459	4.41
7720	14.456	4.41
7735	14.456	4.41
7750	14.456	4.41
7765	14.456	4.404
7780	14.456	4.404
7795	14.454	4.404
7810	14.454	4.398
7825	14.454	4.398
7840	14.454	4.391
7855	14.454	4.391
7870	14.454	4.391
7885	14.452	4.385
7900	14.454	4.385
7915	14.456	4.379
7930	14.454	4.379
7945	14.454	4.379
7960	14.454	4.372
7975	14.452	4.372
7990	14.452	4.372
8005	14.448	4.366
8020	14.446	4.366
8035	14.446	4.36
8050	14.443	4.36
8065	14.441	4.354
8080	14.441	4.354
8095	14.439	4.354
8110	14.439	4.354
8125	14.437	4.347
8140	14.437	4.354
8155	14.435	4.354
8170	14.435	4.347
8185	14.435	4.347
8200	14.435	4.347
8215	14.433	4.347
8230	14.433	4.347
8245	14.433	4.347
8260	14.43	4.341
8275	14.43	4.341
8290	14.433	4.341
8305	14.433	4.341
8320	14.433	4.341
8335	14.433	4.341
8350	14.437	4.341
8365	14.437	4.347
8380	14.437	4.347
8395	14.437	4.341
8410	14.437	4.347
8425	14.435	4.341
8440	14.437	4.341
8455	14.437	4.341
8470	14.437	4.347
8485	14.439	4.347
8500	14.439	4.347
8515	14.439	4.341
8530	14.443	4.347
8545	14.448	4.347
8560	14.452	4.347
8575	14.456	4.347
8590	14.465	4.347
8605	14.474	4.347
8620	14.485	4.347
8635	14.487	4.347

Elapsed Time	INPUT 1
9585	14.439
9600	14.443
9615	14.45
9630	14.456
9645	14.465
9660	14.465
9675	14.465
9690	14.465
9705	14.469
9720	14.474
9735	14.478
9750	14.48
9765	14.478
9780	14.476
9795	14.478
9810	14.476
9825	14.476
9840	14.478
9855	14.476
9870	14.467
9885	14.463
9900	14.463
9915	14.461
9930	14.459
9945	14.456
9960	14.452
9975	14.45
9990	14.448
10005	14.446
10020	14.446
10035	14.441
10050	14.441
10065	14.441
10080	14.439
10095	14.435
10110	14.433
10125	14.435
10140	14.435
10155	14.435
10170	14.433
10185	14.433
10200	14.43
10215	14.428
10230	14.433
10245	14.435
10260	14.433
10275	14.433
10290	14.433
10305	14.43
10320	14.433
10335	14.43
10350	14.433
10365	14.439
10380	14.437
10395	14.435
10410	14.435
10425	14.439
10440	14.437
10455	14.441
10470	14.439
10485	14.437
10500	14.437
10515	14.437
10530	14.433
10545	14.433
10560	14.428
10575	14.43
10590	14.428
10605	14.433
10620	14.43
10635	14.428
10650	14.428
10665	14.424
10680	14.417
10695	14.415
10710	14.411
10725	14.411
10740	14.409
10755	14.407
10770	14.404
10785	14.404
10800	14.402
10815	14.402

Elapsed Time	INPUT 2
9585	3.912
9600	3.918
9615	3.918
9630	3.918
9645	3.918
9660	3.925
9675	3.931
9690	3.925
9705	3.925
9720	3.925
9735	3.925
9750	3.925
9765	3.925
9780	3.925
9795	3.912
9810	3.918
9825	3.912
9840	3.918
9855	3.918
9870	3.912
9885	3.899
9900	3.906
9915	3.906
9930	3.912
9945	3.912
9960	3.912
9975	3.912
9990	3.912
10005	3.912
10020	3.918
10035	3.918
10050	3.918
10065	3.918
10080	3.925
10095	3.925
10110	3.931
10125	3.931
10140	3.931
10155	3.931
10170	3.937
10185	3.937
10200	3.937
10215	3.937
10230	3.944
10245	3.944
10260	3.944
10275	3.95
10290	3.95
10305	3.956
10320	3.956
10335	3.956
10350	3.956
10365	3.962
10380	3.962
10395	3.969
10410	3.969
10425	3.975
10440	3.975
10455	3.981
10470	3.981
10485	3.981
10500	3.988
10515	3.988
10530	3.994
10545	3.994
10560	3.994
10575	3.994
10590	4
10605	4
10620	4
10635	4
10650	4.007
10665	4.007
10680	4
10695	4.007
10710	4
10725	4.007
10740	4.007
10755	4.007
10770	4.007
10785	4.013
10800	4.013
10815	4.019

Elapsed Time	INPUT 1	INPUT 2

Elapsed Time	INPUT 1
10830	14.402
10845	14.407
10860	14.402
10875	14.396
10890	14.387
10905	14.381
10920	14.385
10935	14.381
10950	14.381
10965	14.372
10980	14.374
10995	14.391
11010	14.415
11025	14.446
11040	14.467
11055	14.478
11070	14.489
11085	14.502
11100	14.504
11115	14.508
11130	14.511
11145	14.508
11160	14.506
11175	14.508
11190	14.515
11205	14.515
11220	14.515
11235	14.519
11250	14.519
11265	14.517
11280	14.521
11295	14.526
11310	14.526
11325	14.524
11340	14.521
11355	14.519
11370	14.524
11385	14.528
11400	14.528
11415	14.528
11430	14.532
11445	14.528
11460	14.521
11475	14.517
11490	14.515
11505	14.511
11520	14.508
11535	14.498
11550	14.495
11565	14.493
11580	14.489
11595	14.48
11610	14.478
11625	14.476
11640	14.48
11655	14.482
11670	14.487
11685	14.485
11700	14.482
11715	14.482
11730	14.48
11745	14.476
11760	14.472
11775	14.469
11790	14.461
11805	14.463
11820	14.461
11835	14.456
11850	14.452
11865	14.443
11880	14.439
11895	14.433
11910	14.433
11925	14.43
11940	14.426
11955	14.428
11970	14.426
11985	14.426
12000	14.426
12015	14.426
12030	14.424
12045	14.426
12060	14.42

Elapsed Time	INPUT 2
10830	4.019
10845	4.026
10860	4.032
10875	4.038
10890	4.038
10905	4.038
10920	4.044
10935	4.051
10950	4.057
10965	4.063
10980	4.063
10995	4.07
11010	4.07
11025	4.076
11040	4.082
11055	4.082
11070	4.089
11085	4.095
11100	4.089
11115	4.095
11130	4.095
11145	4.095
11160	4.101
11175	4.095
11190	4.095
11205	4.095
11220	4.089
11235	4.089
11250	4.089
11265	4.089
11280	4.082
11295	4.089
11310	4.082
11325	4.089
11340	4.089
11355	4.089
11370	4.095
11385	4.101
11400	4.101
11415	4.108
11430	4.114
11445	4.12
11460	4.12
11475	4.114
11490	4.12
11505	4.12
11520	4.126
11535	4.126
11550	4.126
11565	4.133
11580	4.133
11595	4.139
11610	4.139
11625	4.139
11640	4.145
11655	4.145
11670	4.145
11685	4.145
11700	4.145
11715	4.152
11730	4.152
11745	4.152
11760	4.152
11775	4.152
11790	4.152
11805	4.158
11820	4.158
11835	4.158
11850	4.164
11865	4.164
11880	4.164
11895	4.164
11910	4.164
11925	4.171
11940	4.171
11955	4.171
11970	4.171
11985	4.171
12000	4.171
12015	4.177
12030	4.177
12045	4.183
12060	4.183

Elapsed Time	INPUT 1	INPUT 2

Elapsed Time	INPUT 1
12075	14.411
12090	14.404
12105	14.391
12120	14.385
12135	14.372
12150	14.366
12165	14.359
12180	14.348
12195	14.35
12210	14.355
12225	14.359
12240	14.363
12255	14.361
12270	14.361
12285	14.363
12300	14.363
12315	14.363
12330	14.372
12345	14.385
12360	14.396
12375	14.396
12390	14.398
12405	14.402
12420	14.42
12435	14.448
12450	14.478
12465	14.508
12480	14.541
12495	14.575
12510	14.588

END

Elapsed Time	INPUT 2
12075	4.183
12090	4.19
12105	4.19
12120	4.183
12135	4.183
12150	4.183
12165	4.183
12180	4.177
12195	4.183
12210	4.183
12225	4.19
12240	4.196
12255	4.196
12270	4.196
12285	4.202
12300	4.202
12315	4.208
12330	4.208
12345	4.208
12360	4.221
12375	4.221
12390	4.221
12405	4.227
12420	4.227
12435	4.221
12450	4.227
12465	4.227
12480	4.234
12495	4.234
12510	4.24

END

APPENDIX C

LETTER REPORT: PIEZOMETER INSTALLATION

7027-xx (2.72 B)

ABB
ASEA BROWN BOVERI

9212048.WP/CR410
7027-01

February 4, 1993

Mr. James Zeisloft
USATHAMA
CETHA-IR-A
Building 4480
Aberdeen Proving Grounds, MD 21010-5401

Subject: Letter Report - Piezometer Installation
Detroit Arsenal, Warren, Michigan

Dear Mr. Zeisloft:

REPORT ON PIEZOMETER INSTALLATION

On December 8, 1992, four piezometers were installed at the Detroit Arsenal in preparation for two pumping tests which were conducted starting in mid December.

PIEZOMETER LOCATIONS

Two piezometers were installed in the west loop of the tank test track near MW003 and two were installed northwest of the tank manufacturing building near MW017. PZ001 and PZ002 were installed 10 and 20 feet, respectively, north of MW003 and PZ003 and PZ004 were installed 10 and 20 feet, respectively, northwest of MW017.

PIEZOMETER INSTALLATION

The piezometers were installed using a truck-mounted CME-45 drill rig with 4-inch OD solid-stem augers. The augers were advanced to a depth of 30 feet and then pulled from the borehole. The piezometer was then lowered into the borehole. The geology typically consists of soft clays so very little borehole collapse occurred. Soils were characterized using cuttings collected from the auger flights.

The piezometers were constructed with 20 feet of screen in five-foot sections of 2-inch ID, 10 slot, schedule 40, flush-threaded PVC well screen. The riser pipe is 2-inch ID, schedule 40, flush-threaded PVC. The annulus was filled with sand to a depth of 3 or 4 feet above the well screen followed by 2 feet of 1/4-inch bentonite tablets. The remaining annulus was filled with a cement/bentonite grout. PZ001 and PZ002 were finished approximately 2 feet above grade with 2-inch PVC caps and locking standpipe well protectors. PZ003 and PZ004 were finished a few inches below grade with lockable expanding caps and flush-mount well protector manholes.

ABB Environmental Services of Michigan, Inc.

39255 Country Club Drive B-25
P. O. Box 2055
Farmington Hills, Michigan 48333-2055

Telephone:
(313) 489-8040

Fax:
(313) 489-8048

On December 10, a half foot mortar collar was installed in the above-grade annulus between the riser pipe and the standpipe well protector at PZ001 and PZ002. Drain holes were drilled in the standpipes on December 28, 1992.

Piezometer-specific boring logs and construction diagrams are included in Appendix A.

PIEZOMETER DEVELOPMENT

On December 10, 1992, piezometers PZ001 and PZ002 were developed using a disposable bailer. Forty gallons of groundwater were removed from each piezometer. The pH, conductivity, and temperature of the water were measured prior to development and at each 10-gallon interval during development.

Piezometers PZ003 and PZ004 were developed during four separate events. The development process involved rapidly pulling a bailer up and down in the water column of the piezometer fifteen to twenty times. This motion creates a surging effect which forces water into and out of the screen. The outflow of water helps to break down bridging, and the inflow then moves fine materials toward the screen and into the piezometer. After surging, sediment-laden water was removed by bailing.

On the morning of December 21, 1992, 8 gallons were bailed from PZ003 and 4 gallons were bailed from PZ004 after which each piezometer went dry (i.e., yielded no water). Due to the low yield of very sediment-laden water in PZ004, approximately 3 gallons of ASTM Type II water was introduced into the piezometer and the development process was repeated. Six gallons of water were bailed from PZ004 during this development. The extracted water contained a large amount of silts and fine sands.

On the afternoon of December 21, the piezometers were developed a second time. Water levels in the piezometers had recovered to 25% of static water levels; therefore, approximately 2 gallons of ASTM Type II water was introduced into each piezometer before development. After surging, 3 gallons of water were bailed from PZ003 and 6 gallons of water were bailed from PZ004 after which the piezometers went dry.

On December 22, 1992, the piezometers were developed for a third time. Water levels in the piezometers had recovered to approximately 30% of static water levels. After surging, 2.5 gallons of water were bailed from PZ003 and 2 gallons were bailed from PZ004 after which each piezometer went dry. The water still contained a large amount of silts and fine sands.

The piezometers were developed for a fourth and final time on December 28, 1992. Water levels in the piezometers had recovered to approximately 90% of static water levels. After surging, 6 gallons of water were bailed from PZ003 and 4 gallons were bailed from PZ004 after which each piezometer went dry. The water still contained some silts and fine sands.

SOIL CUTTING AND DEVELOPMENT WATER DISPOSAL

Soil cuttings were placed in three 55-gallon steel drums which were placed in the Materials Handling Area as specified by USATHAMA. On December 10, 1992, one sample was collected from each drum to be analyzed for volatile organic compounds, and one composite sample combining soil from all three drums was collected to be analyzed for total metals, cyanide, and TCLP metals. The soil cuttings will be disposed of by the Detroit Arsenal once the analytical results are reviewed.

Development water was discharged to the installation's sanitary sewer system. If you have any questions, please call me.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

Greta D. Reade

Greta D. Reade
Project Manager

GDR/tay

Attachments

BORING LOGS/CONSTRUCTION DIAGRAMS

PZ001

BORING LOG / MONITORING WELL DIAGRAM

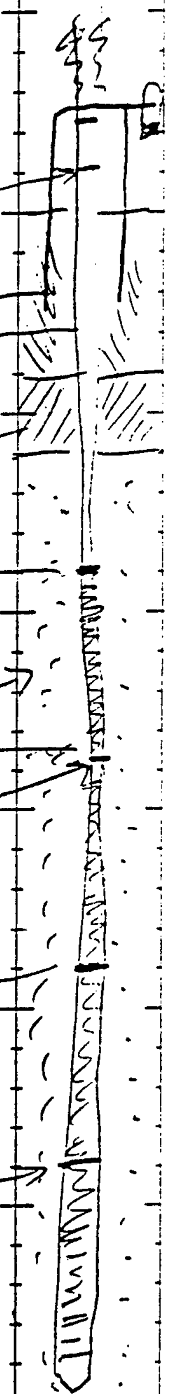
ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 7027-02	PROJECT NAME: USATHAMA - Detroit Arsenal	BORING/WELL DESIGNATION: PZ-1	BORING/WELL LOCATION:
DRILLING CONTRACTOR: TESTING ENGINEERS AND CONSULTANTS	DRILLING METHOD: SOLID STEM AUGER	BOREHOLE SIZE: 4 IN.	BOREHOLE DEPTH: 30 FT.
DATE STARTED: 12/8/92	DATE COMPLETED: 12/8/92	GROUND ELEV.: FT.	MEASURING POINT ELEV.: FT.
WELL DEPTH: 29'10" FT.	RIG: CME-45	DRILLER: J. Mickle	HELPER: B. Russell
LOGGED BY: JASON BELL			

Boring/well location sketch: N ↑ • PZ2 • PZ1 • MW3

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS
						joint
0	Sand-gravel Fill - DK Br-gray trace silt, concrete rubble moist-wet no odor					cement bent grout; 2" ID riser PVC flush threaded
5	Sandy clay - Olive-gray - Brown trace silt tr concrete rubble soft moist-wet no odor					Bent pellets 1/4" enviroplug
	Clay - Brown/gray trace mg sand, very soft, wet no odor					Joint
10						Sand
	clay - gray					Joint
15						2" ID PVC screen flush threaded .010 slot
20	Sandy Clay - DK gray tr gravel m-cg very soft damp moist no odor					joint
25						joint
30	EOB 30'					

WELL DATA



NOTES: SOILS LOGGED FROM AUGER FLIGHTS

These are not report quality — should be redone.

PZ002

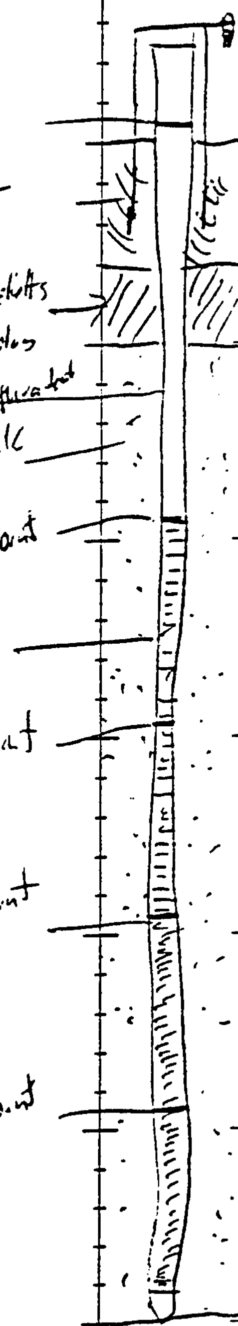
BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 7027-02	PROJECT NAME: USATHAMA - Detroit Arsenal	BORING/WELL DESIGNATION: PZ-2	BORING/WELL LOCATION: • PZ2 • PZ-1 • MW-3
DRILLING CONTRACTOR: TESTING ENGINEERS AND CONSULTANTS	DRILLING METHOD: SOLID STEM AUGER	BOREHOLE SIZE: 4 IN.	BOREHOLE DEPTH: 30 FT.
DATE STARTED: 12/7/92	DATE COMPLETED: 12/8/92	GROUND ELEV.: FT.	MEASURING POINT ELEV: FT.
WELL DEPTH: 30 FT.	RIG: CME-45	DRILLER: ~~[illegible]~~ Mickle	HELPER: B. Kusel
LOGGED BY: JASON BELL			

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS
						Joint
0	Sand/Gravel fill - DK Brown fine-coarse gr. some construction debris moist no odor					grout
	Sandy Clay - Olive gray/brown tr silt & gravel soft moist-wet no odor					Bent Pellets 1/4" curv. plugs
5						2" ID PVC Riser flush threaded
	Clay - olive gray trace sand very soft moist no odor					Sandpack
10	more gravel present					Joint
						2" ID PVC .010" slot screen flush threaded
15	Clay - gray very soft moist					Joint
20						Joint
	Sandy Clay - DK gray very soft tr gravel m-cg damp no odor					Joint
25						
30	EOB 30'					

WELL DATA



NOTES: SOILS LOGGED FROM AUGER FLIGHTS

PZ003

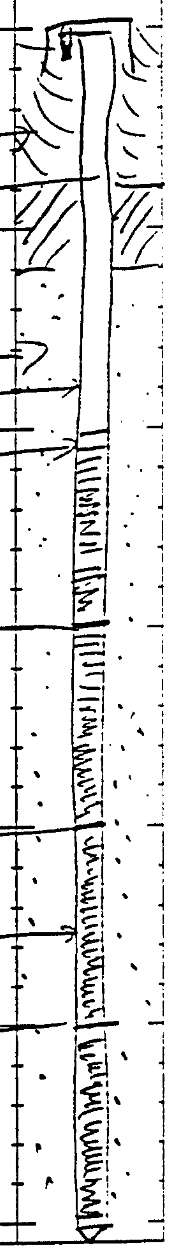
BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 7027-02	PROJECT NAME: USATHAMA - Detroit Arsenal		BORING/WELL DESIGNATION: PZ-3	BORING/WELL LOCATION:
DRILLING CONTRACTOR: TESTING ENGINEERS AND CONSULTANTS	DRILLING METHOD: SOLID STEM AUGER	BOREHOLE SIZE: 4 IN.	BOREHOLE DEPTH: 31 FT.	•PZ4
DATE STARTED: 12/8/92	DATE COMPLETED: 12/8/92	GROUND ELEV.: FT.	MEASURING POINT ELEV: FT.	WELL DEPTH: 30 FT. •PZ3 •MW17 N
RIG: CME-45	DRILLER: Jan M-kle	HELPER: B. Kussel	LOGGED BY: JASON BELL	

DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS
0	~~Asphalt~~ Fill-Sand + gravel Brown-black coal concrete rubble some clay					Flush mount manhole cover locking expanding cap; grout
5	Clay-olive brown soft moist-wet tr sands gravel no odor					Bent seal 1/4" tablets; sandpack
10	Clay-gray-DK gray some sand soft-med stiff tr gravel moist no odor					2" ID well riser Sch 40 flush joint threaded
15	- as above but stiffer					joint
20						Joint; 2" ID PVC .010" slot well screen flush threaded Sch 40
25						joint
30						
31	EOB 31					

WELL DATA



NOTES: SOILS LOGGED FROM AUGER FLIGHTS

PZ004

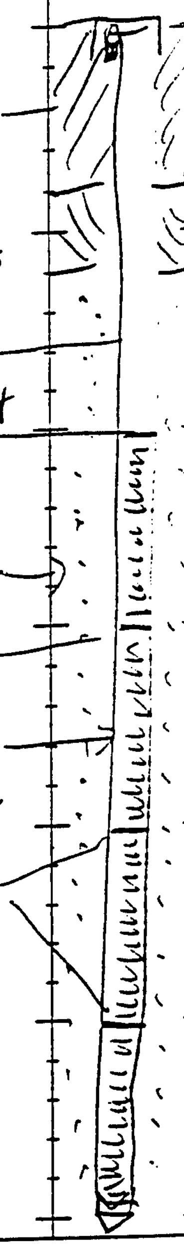
BORING LOG / MONITORING WELL DIAGRAM

ABB ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 7027-02	PROJECT NAME: USATHAMA - Detroit Arsenal		BORING/WELL DESIGNATION: PZ-4	
DRILLING CONTRACTOR: TESTING ENGINEERS AND CONSULTANTS	DRILLING METHOD: SOLID STEM AUGER		BOREHOLE SIZE: 4 IN.	BOREHOLE DEPTH: 31 FT.
DATE STARTED: 12/3/92	DATE COMPLETED: 12/3/92	GROUND ELEV.: FT.	MEASURING POINT ELEV.: FT.	WELL DEPTH: 30 FT.
RIG: CME-45	DRILLER: J. M[illegible]	HELPER: B. Russel	LOGGED BY: JASON BELL	

BORING/WELL LOCATION:
- PZ-4
- PZ-3
- MW-17

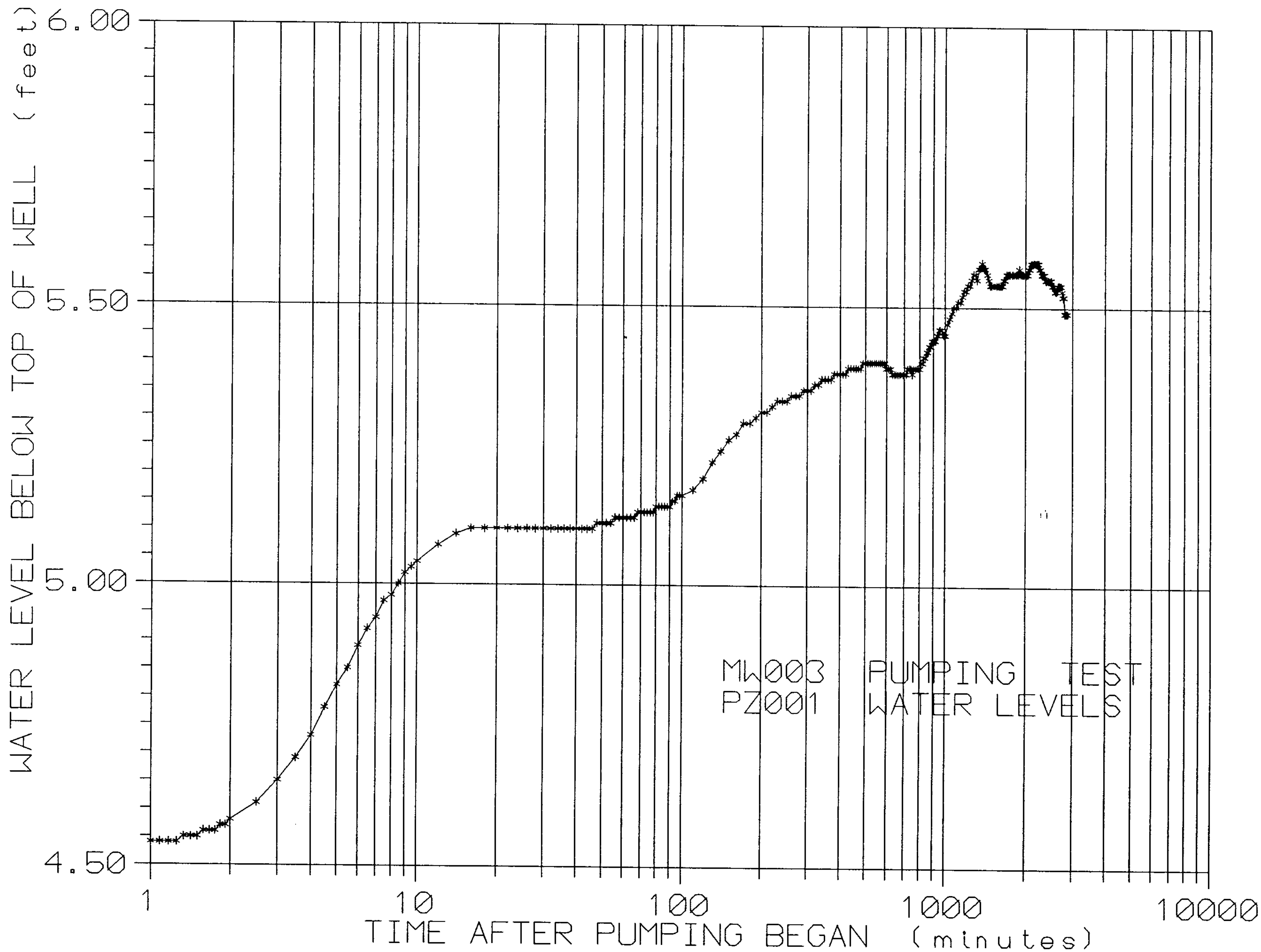
DEPTH (FT.)	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	BLOW COUNTS(N)	P.I. METER (ppm)	COMMENTS
						Flush mount expanding cap locked
0	~~Asphalt~~ Fill - gravel - coal asphalt cement					grout
	Clay - olive brown very soft some sand moist - wet no odor					Bent pellets
5						2" riser PVC flush threaded joint
10	Clay - gray - dk gray some sand soft - med stiff tr gravel moist no odor					sand
15						vent
						Screen 2" ID sch 40 PVC .010 slot flush threaded joint
20						
25						
30						
31	EOB 31'					



NOTES: SOILS LOGGED FROM AUGER FLIGHTS

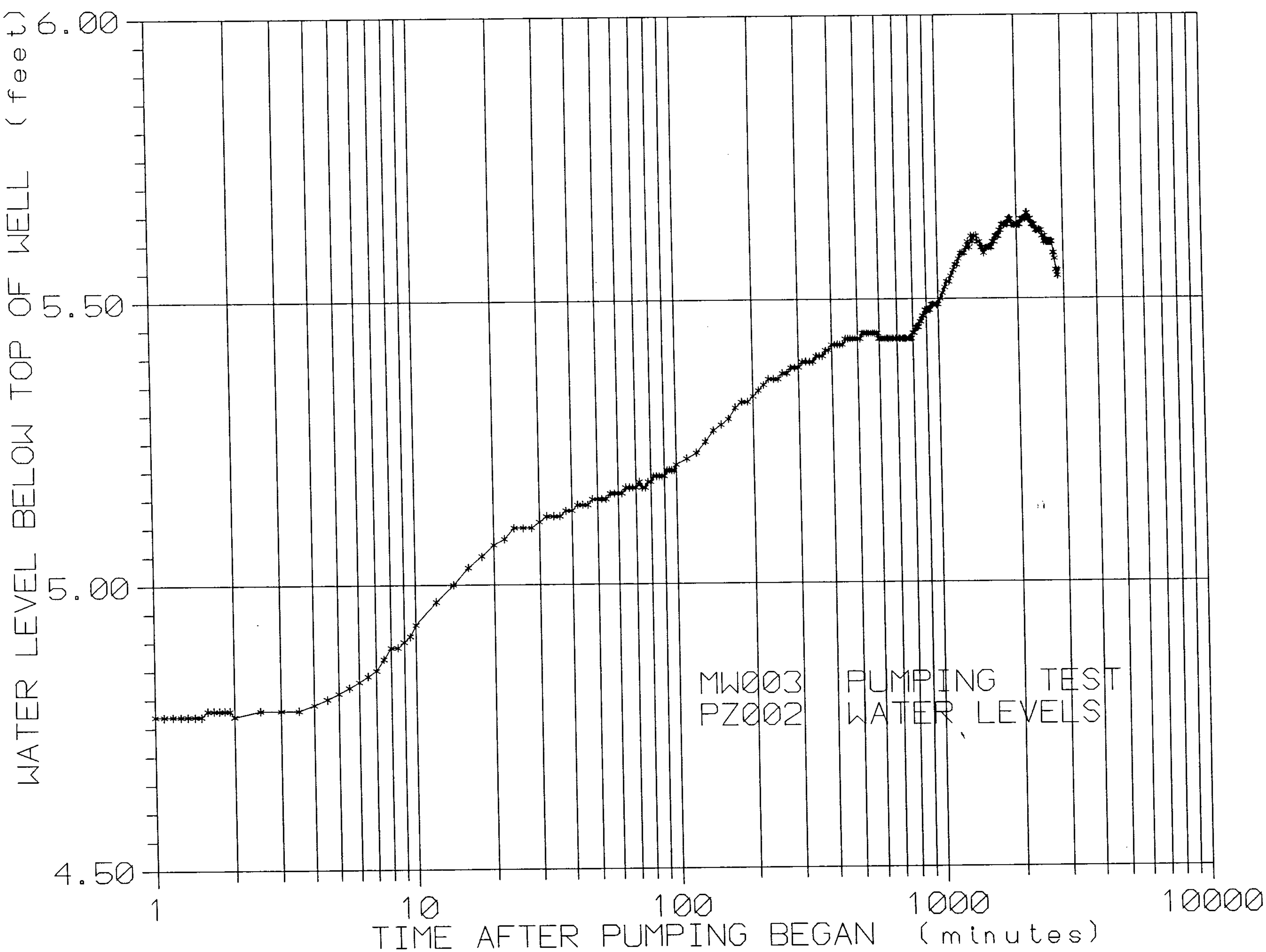
APPENDIX D

MW003 DRAWDOWN PLOTS



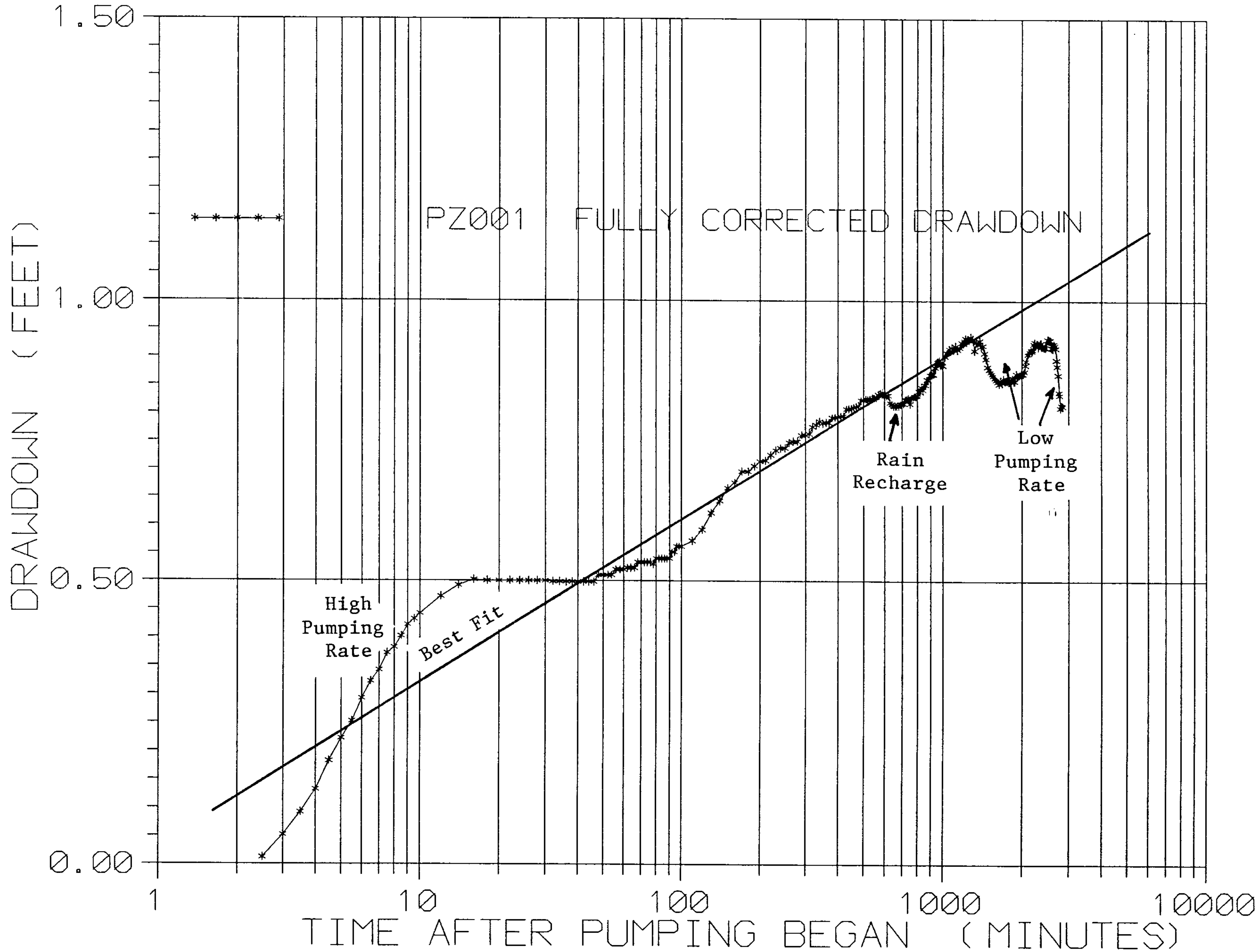
No Adjustments To Raw Data

PZ1WLSRD.GRF/LLD

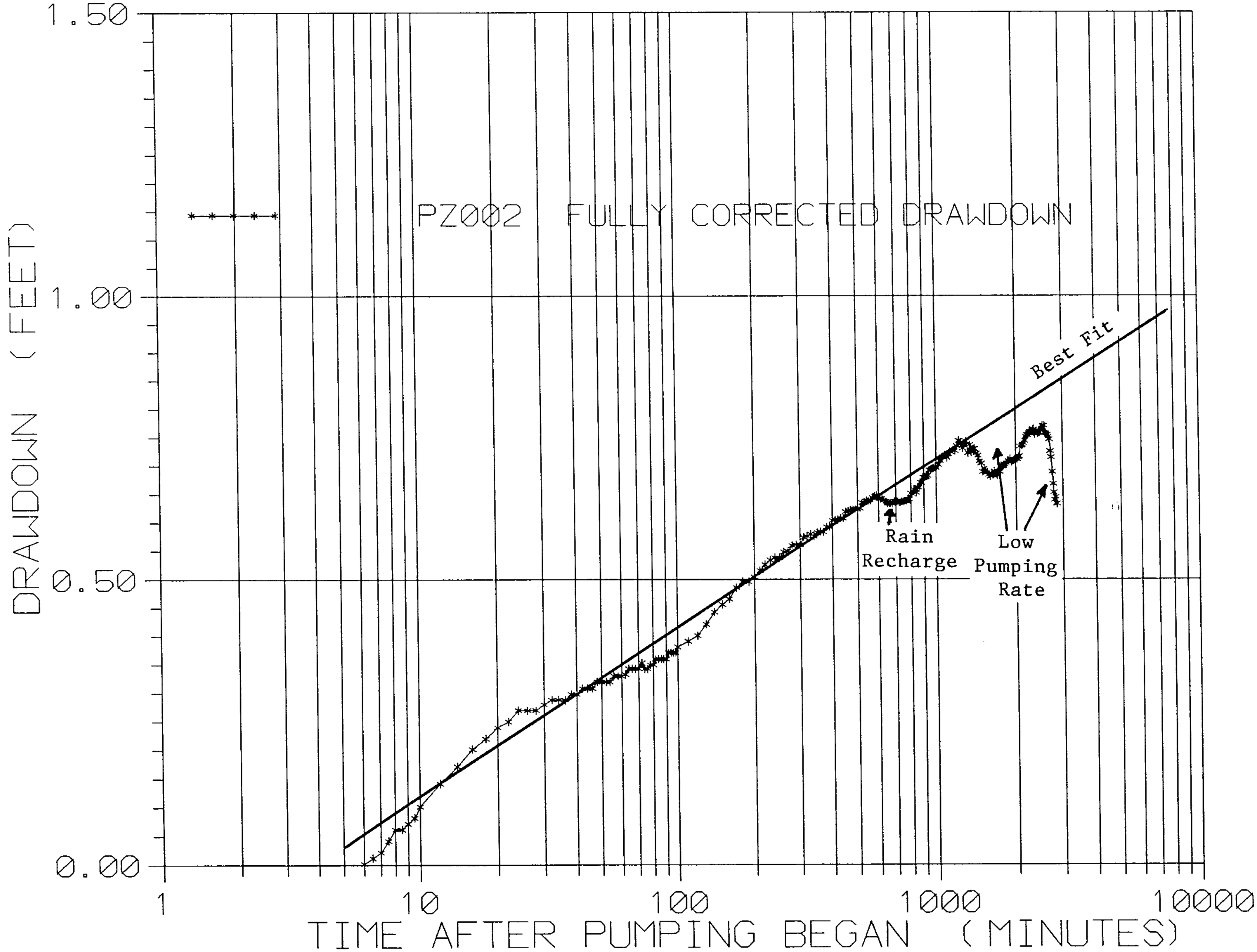


No Adjustments To Raw Data

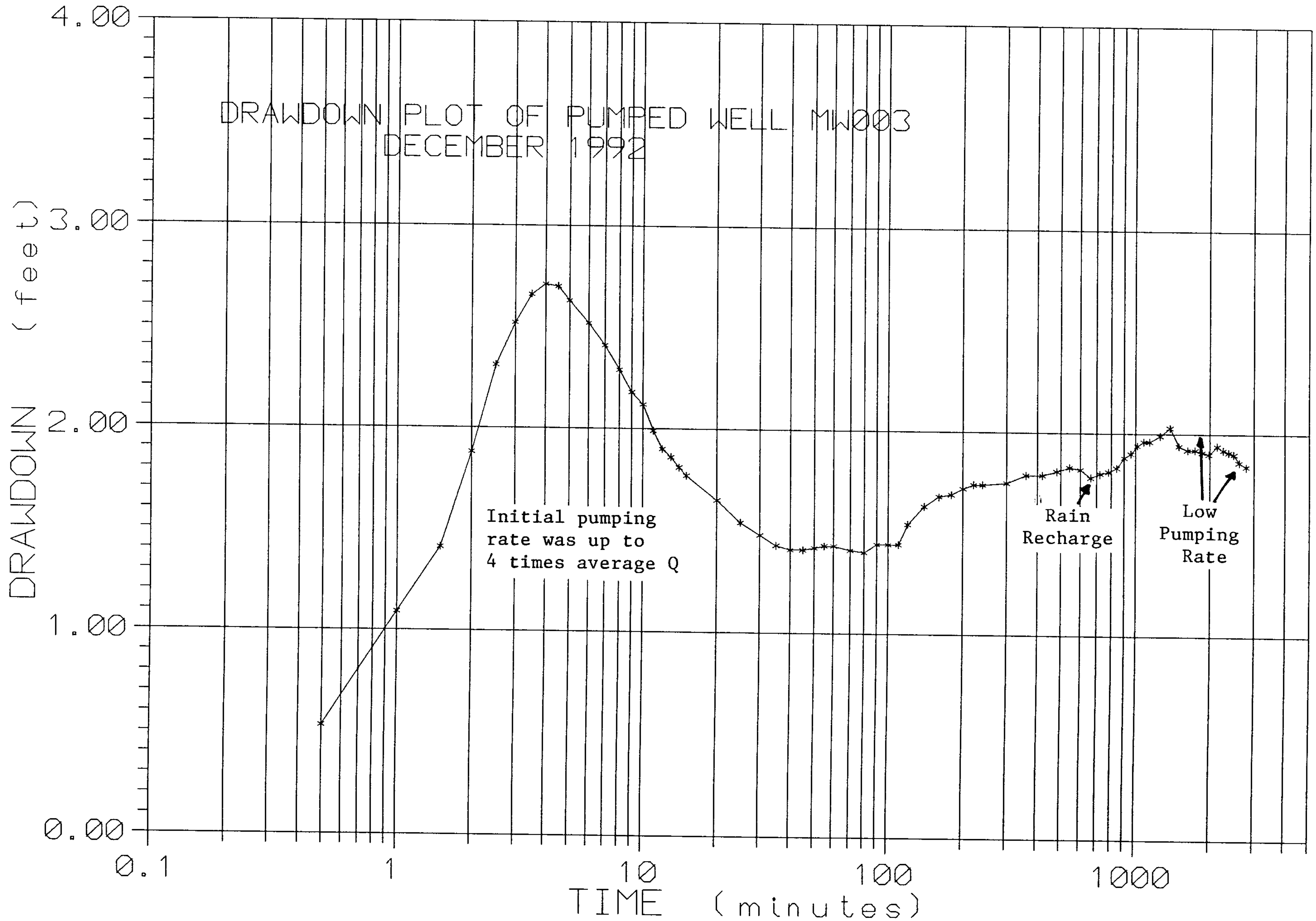
PZZWLSDRD.GRF/LLD



PZ1CORDD.GRF/LLD



PZZCORDD.GRF/LLD

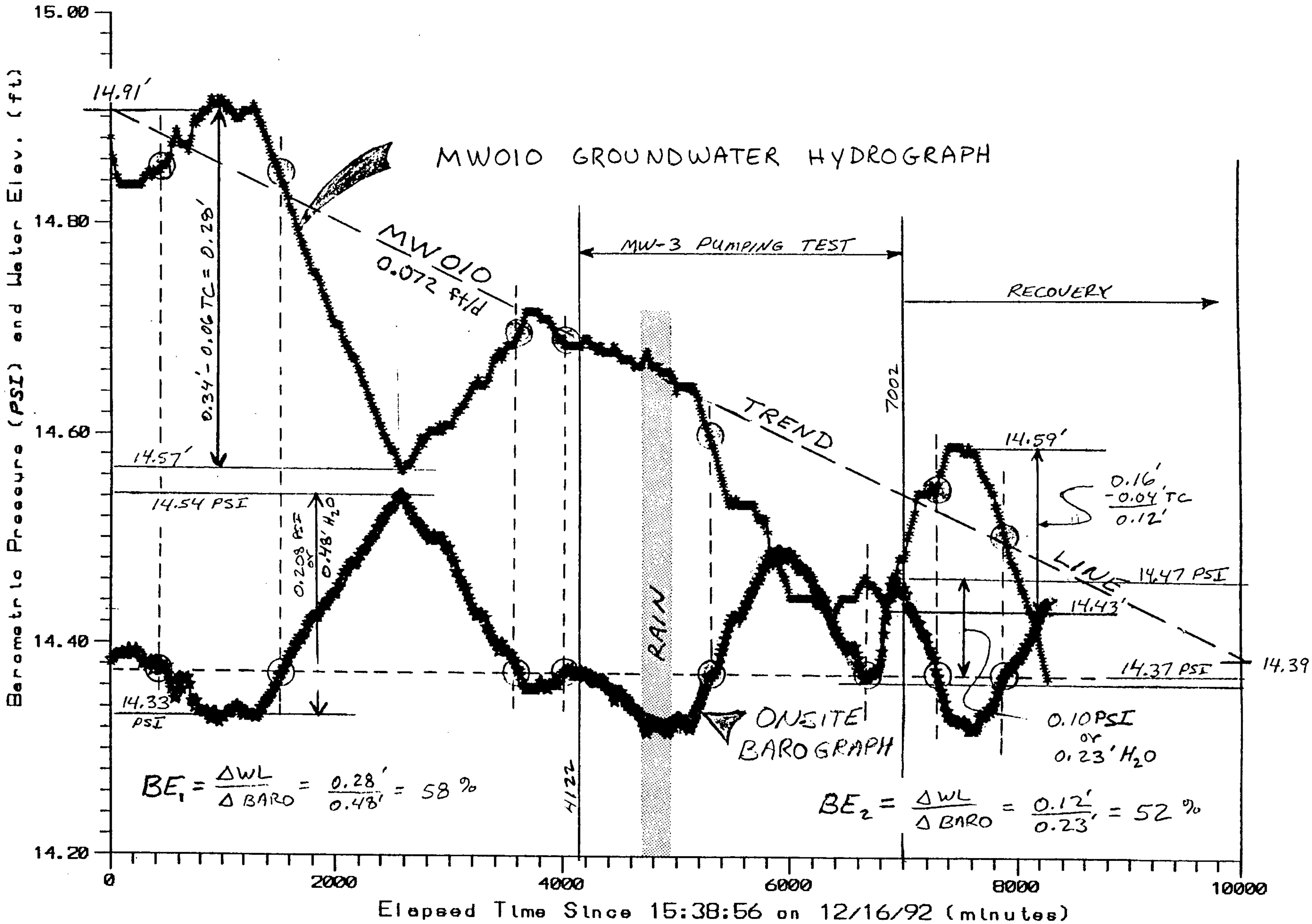


DRAWDOWN PLOT OF PUMPED WELL MW003
DECEMBER 1992
DRAWDOWN (feet)
4.00
3.00
2.00
1.00
0.00
0.1
1
10
100
1000
TIME (minutes)
Initial pumping rate was up to 4 times average Q
Rain Recharge
Low Pumping Rate

BAROMETRIC ADJUSTMENTS

The downloaded water-level data from piezometers PZ001 and PZ002 and the background well, MW010, were processed and unadjusted (raw) data were plotted by computer on linear graphs. The plot of MW010 indicated a need for adjustments to water levels for both general trends and barometric influence (Figure F-1). The interpreted trend line on the figure has a downward slope of 0.072 feet per day. Once this correction was applied to the MW010 plot (Heath and Trainer, 1968), the barometric efficiency of the well was computed from the barometer rise corresponding to the periods 1,300 to 2,600 minutes and 6,700 to 6,900 minutes elapsed time on the plot. The resulting efficiencies were 58 and 52 percent, respectively. Trial-and-error applications of adjustments in this range resulted in the visually best smoothing of the MW010 hydrograph at 60 percent. However, when this barometric efficiency was applied to the hydrographs for PZ001 and PZ002 after trend corrections, it was obviously too large -- indicating greater confinement of groundwater around MW010 than around PZ001 and PZ002. Several efficiencies were tried before an efficiency of 35 percent was determined to best smooth the barometer fluctuations in the plots. The difference in barometric efficiencies between MW010 and the two piezometers may be due to the paved area of the test track north and east of MW010.

The drawdown plot of the pumped well (MW003) exhibits a large anomaly in the first 50 minutes of pumping due to a discharge valve adjustment problem resulting in a relatively high pumping rate in the first 10 minutes. A brief rise in water level occurred 600 to 700 minutes into the test and can be correlated with a period of rain. Another small rise at 1,400 minutes can be attributed to an inadvertent decrease in pumping rate to 0.07 gpm. A larger rise at the end of the test is also due to a decrease in pumping rate. Drawdown plots for the piezometers also clearly show these features. However, because the recovery plots are not significantly affected by variation in pumping rates, they were selected for hydraulic parameter analysis instead of drawdown plots that were significantly affected. Therefore, the drawdown plots were not quantitatively analyzed.

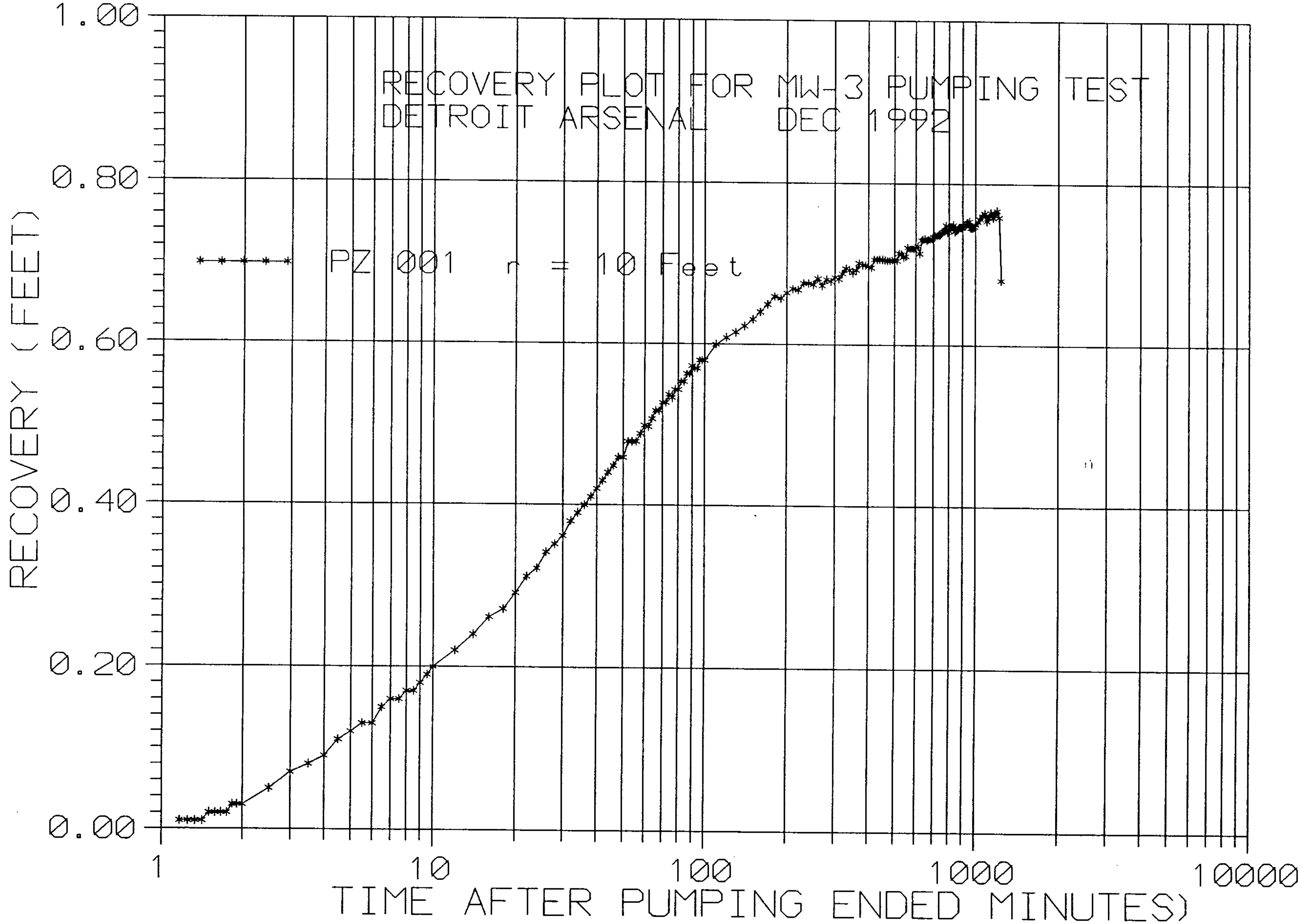


MW010 GROUNDWATER HYDROGRAPH
Barometric Pressure (PSI) and Water Elev. (ft)
Elapsed Time Since 15:38:56 on 12/16/92 (minutes)
15.00
14.80
14.60
14.40
14.20
0
2000
4000
6000
8000
10000
14.91'
0.34' - 0.06 TC = 0.28'
MW010
0.072 ft/d
MW-3 PUMPING TEST
RECOVERY
TREND
LINE
14.57'
14.54 PSI
0.208 PSI or 0.48' H2O
14.33 PSI
RAIN
4/22
7002
ONSITE BAROGRAPH
14.59'
0.16' -0.04' TC 0.12'
14.47 PSI
14.43'
14.37 PSI
14.39
0.10 PSI or 0.23' H2O
BE1 = ΔWL / Δ BARO = 0.28' / 0.48' = 58 %
BE2 = ΔWL / Δ BARO = 0.12' / 0.23' = 52 %

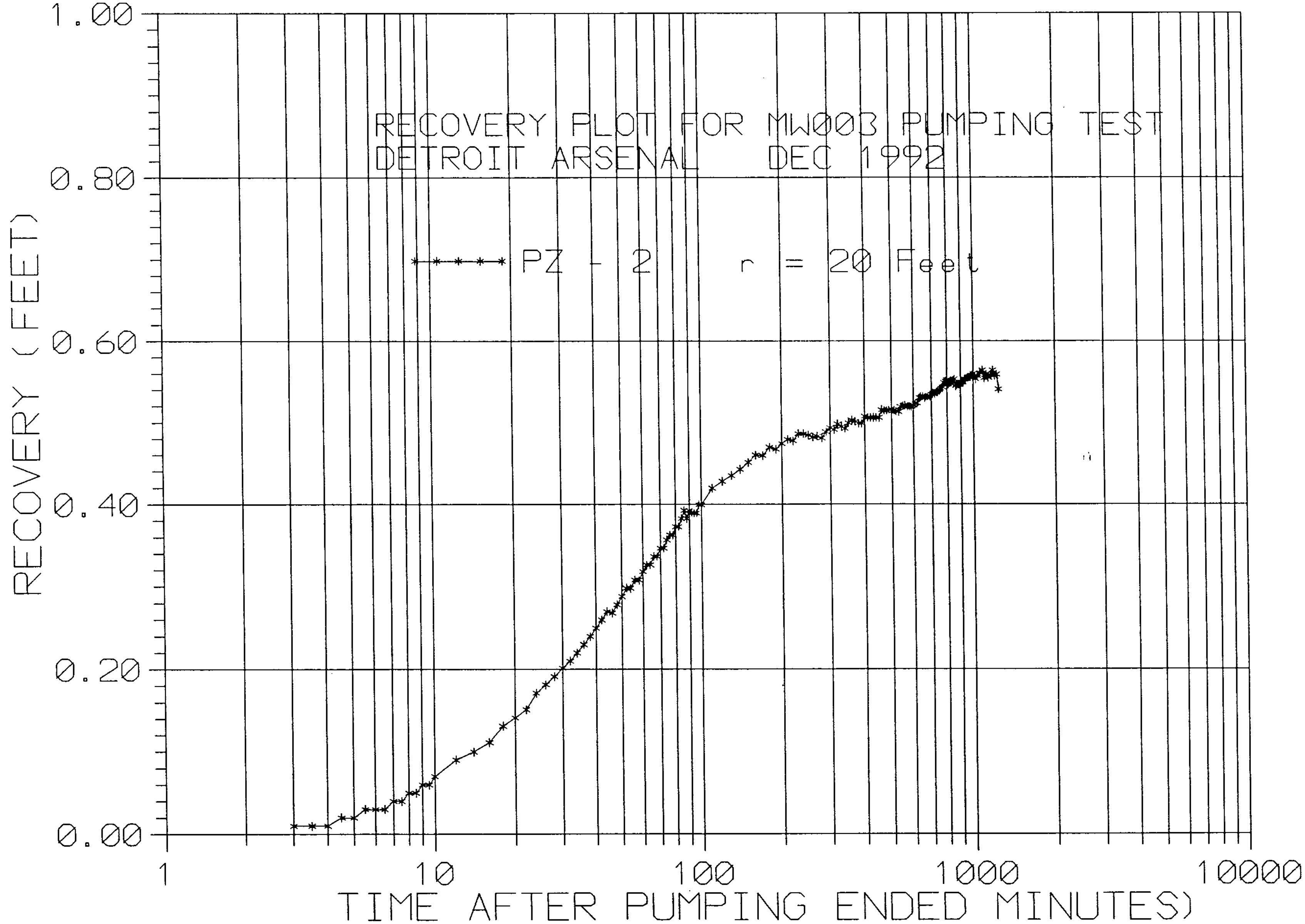
FIGURE F-1

APPENDIX E

MW003 RECOVERY PLOTS

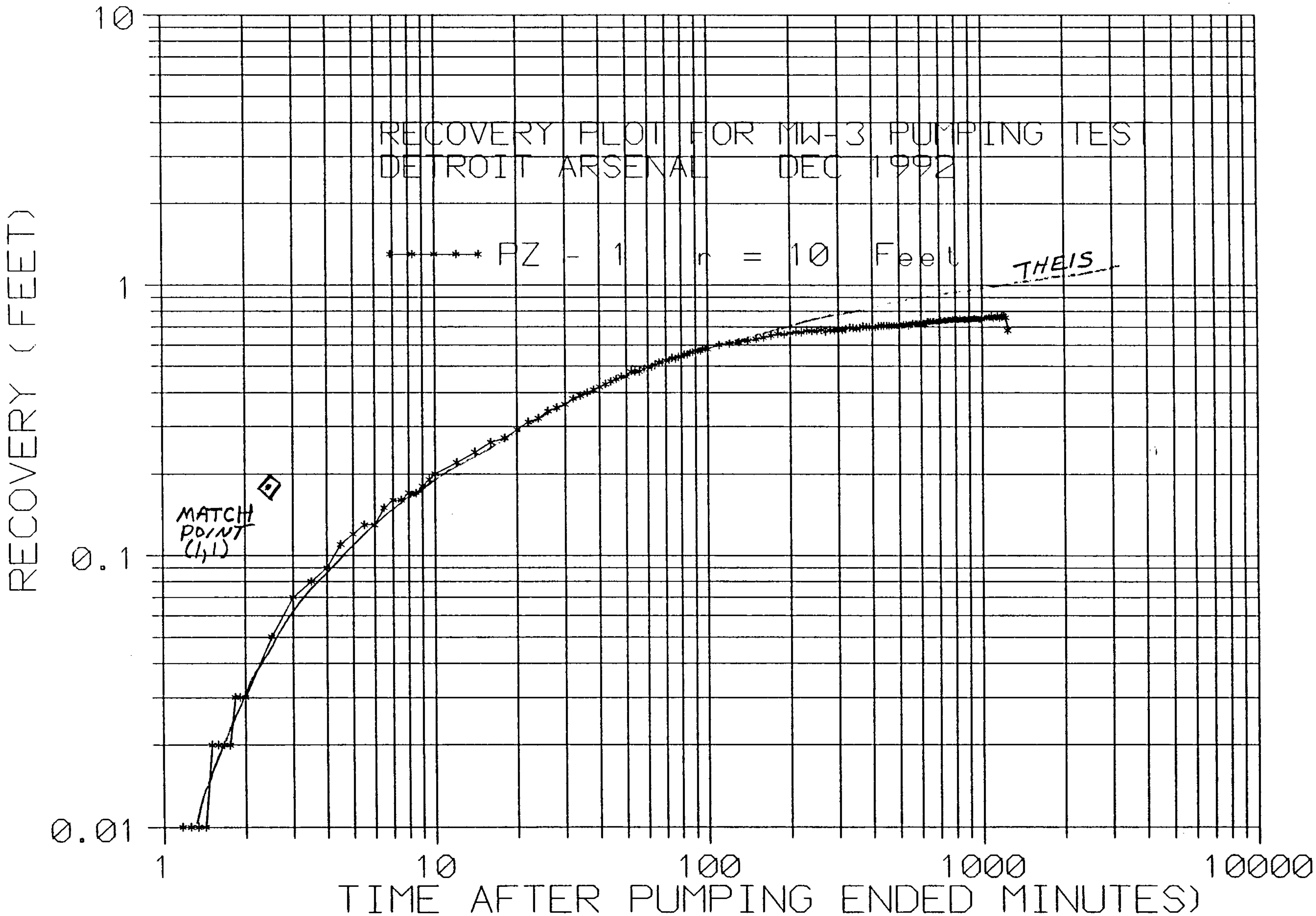


M3PZ1RCS.GRF/LLD



M3PZ2RCS.GRF/LLD

THEIS METHOD


RECOVERY PLOT FOR MW-3 PUMPING TEST
DETROIT ARSENAL DEC 1992
PZ - 1 r = 10 Feet
THEIS
MATCH POINT (1,1)
RECOVERY (FEET)
10
1
0.1
0.01
1
10
100
1000
10000
TIME AFTER PUMPING ENDED MINUTES)

PROJECT	COMP. BY	JOB NO.
THETS RECOVERY	LCD	07027-01
	CHK. BY	DATE 6-26-93

Recovery Plot Analysis (Log t vs Log s')

PZ-1

$$T = \frac{Q}{4\pi s} W(u)$$

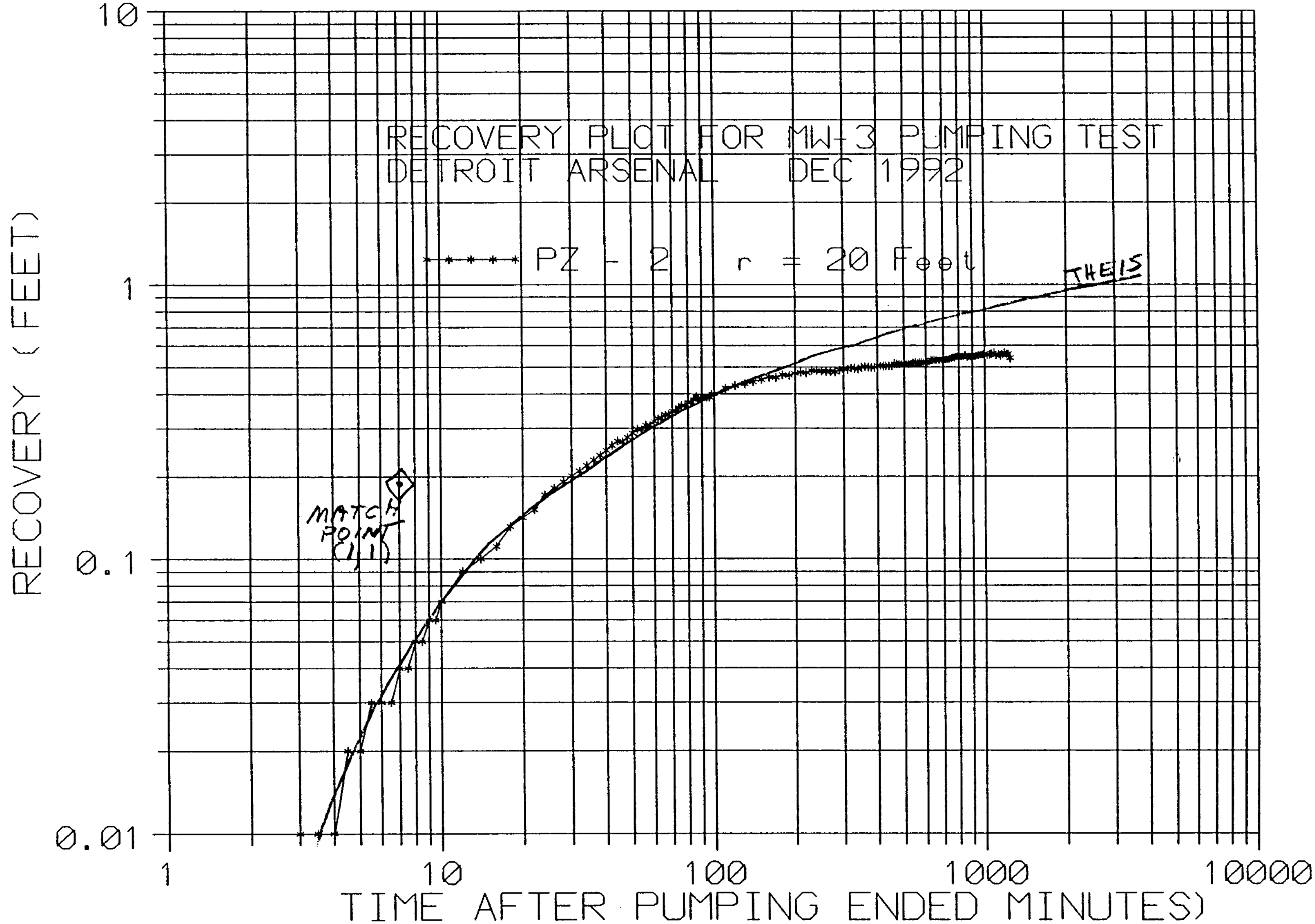
$$= \frac{0.08 \text{ gal min}^{-1} (1440 \text{ min day}^{-1})(1)}{4\pi\ (0.18 \text{ ft})(7.48 \text{ gal ft}^{-3})}$$

$$= 6.8 \text{ ft}^2 \text{ day}^{-1}$$

$$S = \frac{4Ttu}{r^2}$$

$$= \frac{4\ (6.8 \text{ ft}^2 \text{day}^{-1})(2.4 \text{ min})(1)}{(10 \text{ ft})^2 (1440 \text{ min day}^{-1})}$$

$$= 4.5 \times 10^{-4}$$



RECOVERY PLOT FOR MW-3 PUMPING TEST
DETROIT ARSENAL DEC 1992
PZ - 2 r = 20 Feet
THEIS
MATCH POINT (1,1)
RECOVERY (FEET)
10
1
0.1
0.01
1
10
100
1000
10000
TIME AFTER PUMPING ENDED MINUTES)

PROJECT	COMP. BY	JOB NO.
DETROIT ARSENAL	LLD	07027-01
	CHK. BY	DATE 6-26-93

THEIS ANALYSES OF MW-3 PUMPING TEST

Recovery of PZ-2: Log-Log Plot

$r = 20$ feet $\quad Q = 0.08$ gpm

$$T = \frac{Q}{4\pi s} W(u)$$

$$= \frac{0.08 \text{ gal min}^{-1} (1440 \text{ min day}^{-1})(1)}{4\pi (0.19 \text{ ft})(7.48 \text{ gal ft}^{-3})}$$

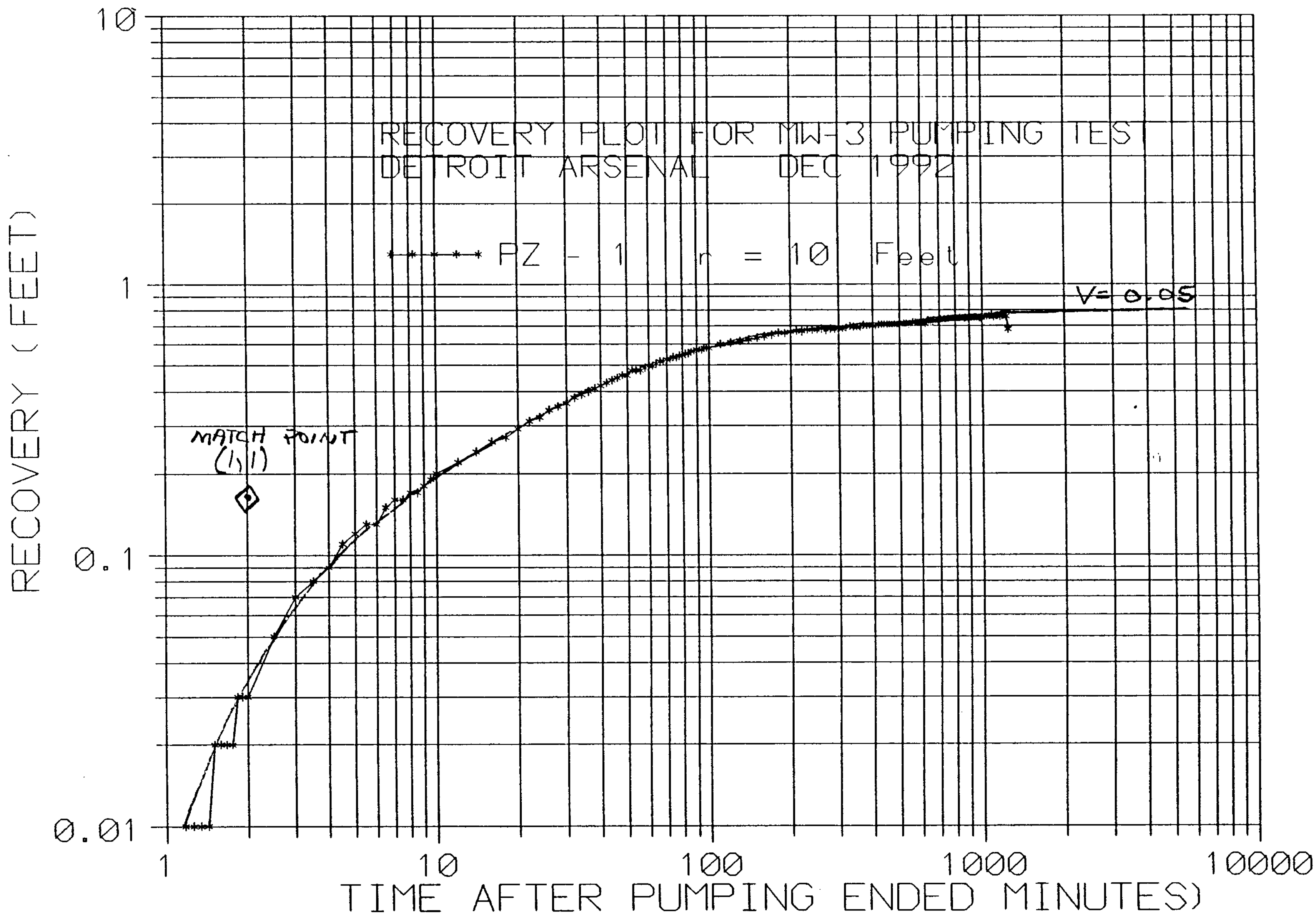
$$= 6.4 \text{ ft}^2 \text{ day}^{-1}$$

$$S = \frac{4Ttu}{r^2}$$

$$= \frac{4(6.4 \text{ ft}^2 \text{day}^{-1})(7 \text{ min})(1)}{(20 \text{ ft})^2 (1440 \text{ min day}^{-1})}$$

$$= 3.1 \times 10^{-4}$$

HANTUSH-JACOB METHOD


RECOVERY PLOT FOR MW-3 PUMPING TEST
DETROIT ARSENAL DEC 1992
PZ - 1 r = 10 Feet
V= 0.05
MATCH POINT
(1,1)
10
1
0.1
0.01
RECOVERY (FEET)
1
10
100
1000
10000
TIME AFTER PUMPING ENDED MINUTES)

PROJECT DETROIT ARSENAL PUMPING TEST HYDRAULIC ANALYSIS	COMP. BY LJD	JOB NO. 07027-01
	CHK. BY	DATE 7-16-93

MW-3 TEST: Recovery of PZ-1

Using Hantush-Jacob Leaky Aquifer Method

- water levels collected by transducer/datalogger
- slight rise of data plot later than 600 minutes may be result of inexactness of barometric and/or trend adjustments extrapolated to this location

$$T = \frac{Q}{4\pi s}(1.0)$$

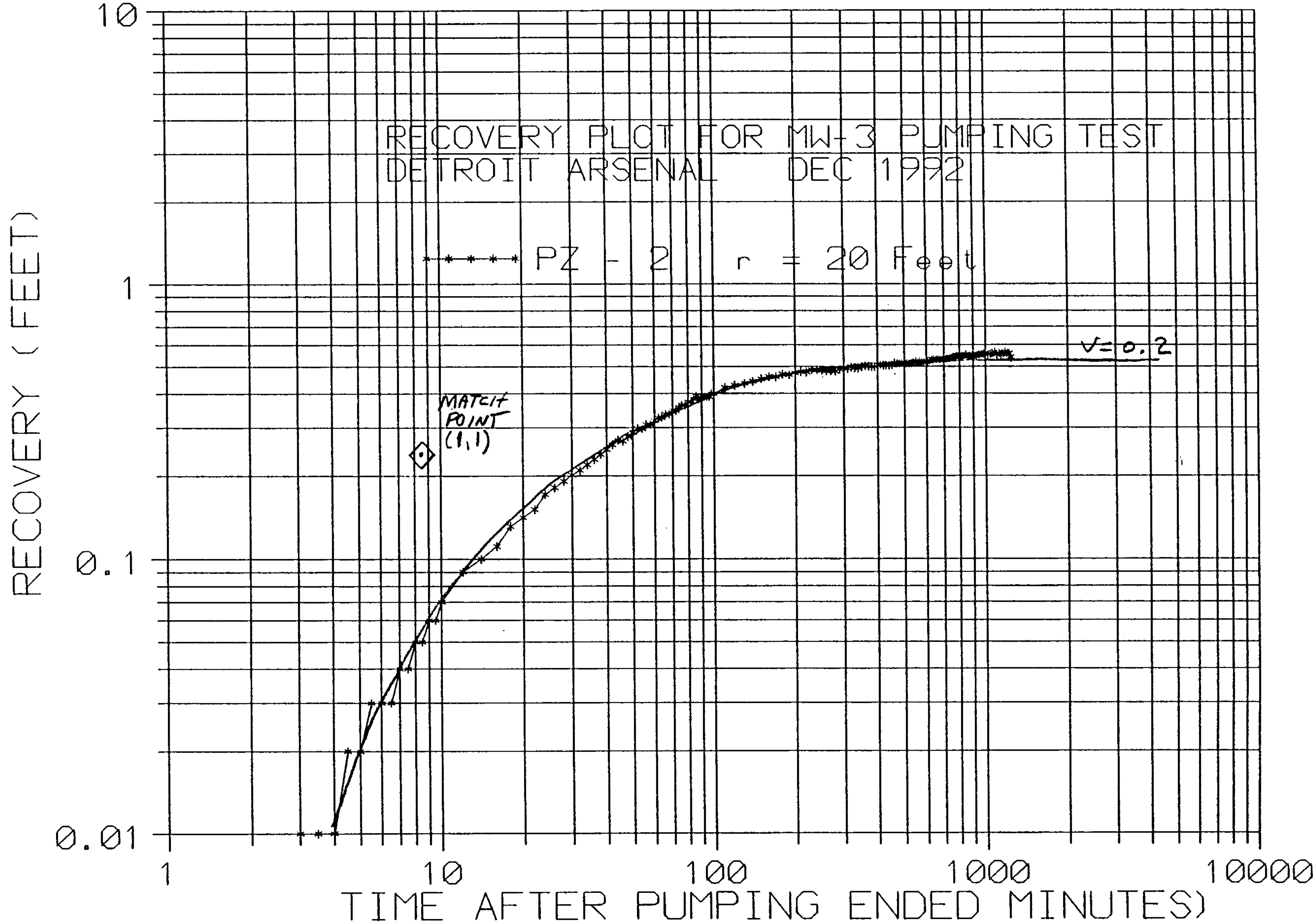
$$= \frac{(0.08\ \text{gal min}^{-1})(1440\ \text{min day}^{-1})}{(12.57)(0.17\ \text{ft})(7.48\ \text{gal ft}^{-3})}$$

$$= 7.2\ \text{ft}^2/\text{day}$$

$$S = \frac{4Tt}{r^2(1.0)}$$

$$= \frac{4(7.2\ \text{ft}^2\text{day}^{-1})(\frac{2}{1440}\ \text{day})}{(10\ \text{ft})^2}$$

$$= 4.0 \times 10^{-4}$$


RECOVERY PLOT FOR MW-3 PUMPING TEST
DETROIT ARSENAL DEC 1992
PZ - 2 r = 20 Feet
MATCH POINT (1,1)
V=0.2
RECOVERY (FEET)
10
1
0.1
0.01
1
10
100
1000
10000
TIME AFTER PUMPING ENDED MINUTES)

PROJECT DETROIT ARSENAL PUMPING TEST HYDRAULIC ANALYSIS	COMP. BY LLD	JOB NO. 07027-01
	CHK. BY	DATE 7-16-93

MW-3 TEST: Recovery of PZ-2

Using Hantush-Jacob Leaky Aquifer Method

- Water levels collected by transducer/datalogger
- "Goodness" of curve fit ($v=0.2$) may reflect small errors in barometric or trend adjustments at late time

$$T = \frac{Q}{4\pi A}(1.0)$$

$$= \frac{(0.08\ gal\ min^{-1})(1440\ min\ day^{-1})}{(12.57)(0.230\ ft)(7.48\ gal\ ft^{-3})}$$

$$= 5.3\ ft^2/day$$

$$S = \frac{4Tt}{r^2\ (1.0)}$$

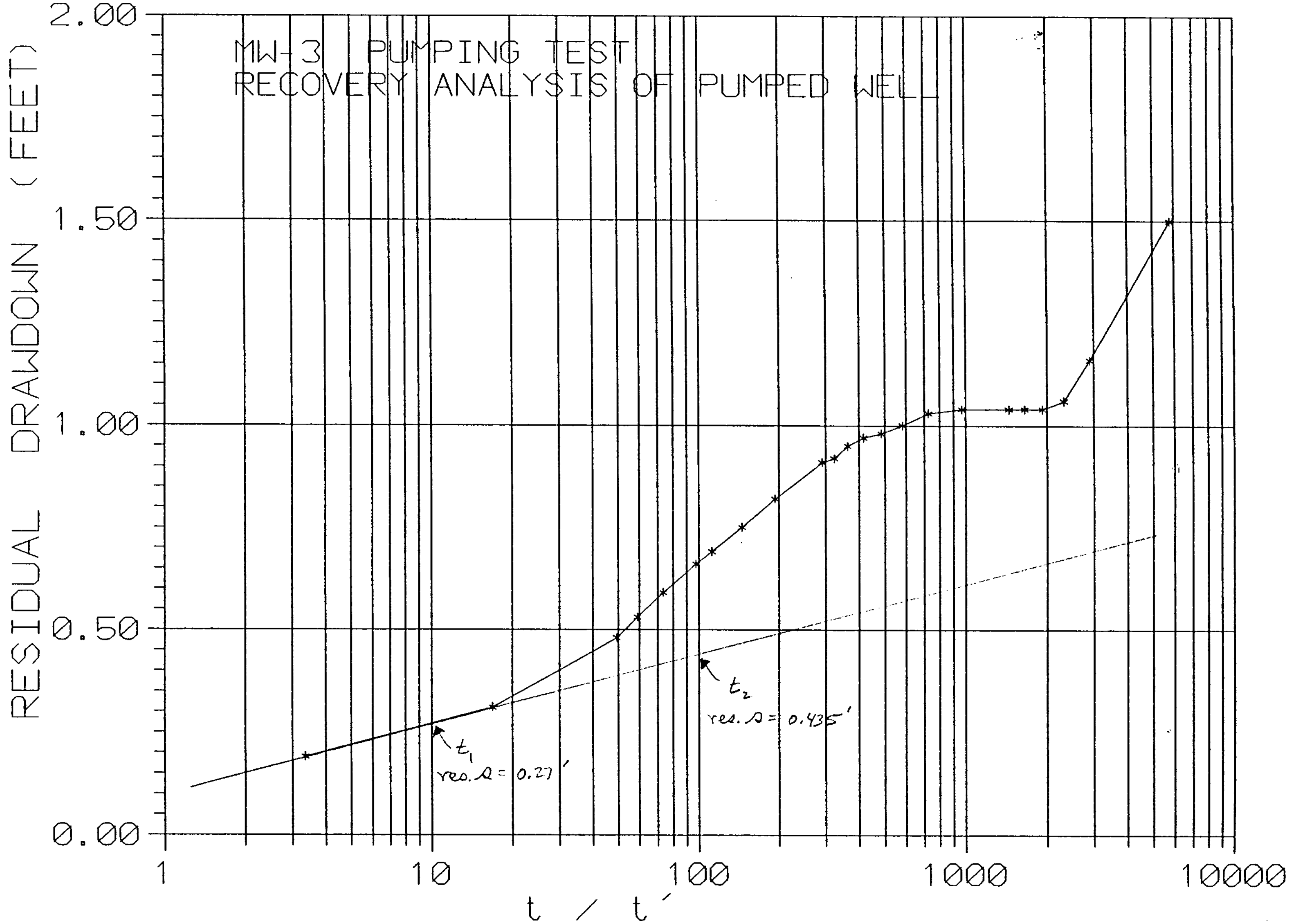
$$= \frac{4(5.3\ ft^2 day^{-1})(\frac{8.5}{1440}\ day)}{(20\ ft)^2}$$

$$= 3.1 \times 10^{-4}$$

FORM 00.01 REV. 4/81

ABB Environmental Services, Inc.

RESIDUAL DRAWDOWN METHOD


MW-3 PUMPING TEST
RECOVERY ANALYSIS OF PUMPED WELL
RESIDUAL DRAWDOWN (FEET)
2.00
1.50
1.00
0.50
0.00
1
10
100
1000
10000
t / t'
t1
res. s = 0.27'
t2
res. s = 0.435'

PROJECT DETROIT ARSENAL PUMPING TEST HYDRAULIC ANALYSIS	COMP. BY LCD	JOB NO. 07027-01
	CHK. BY	DATE 6-25-93

MW-3 TEST: Recovery of Pumped well

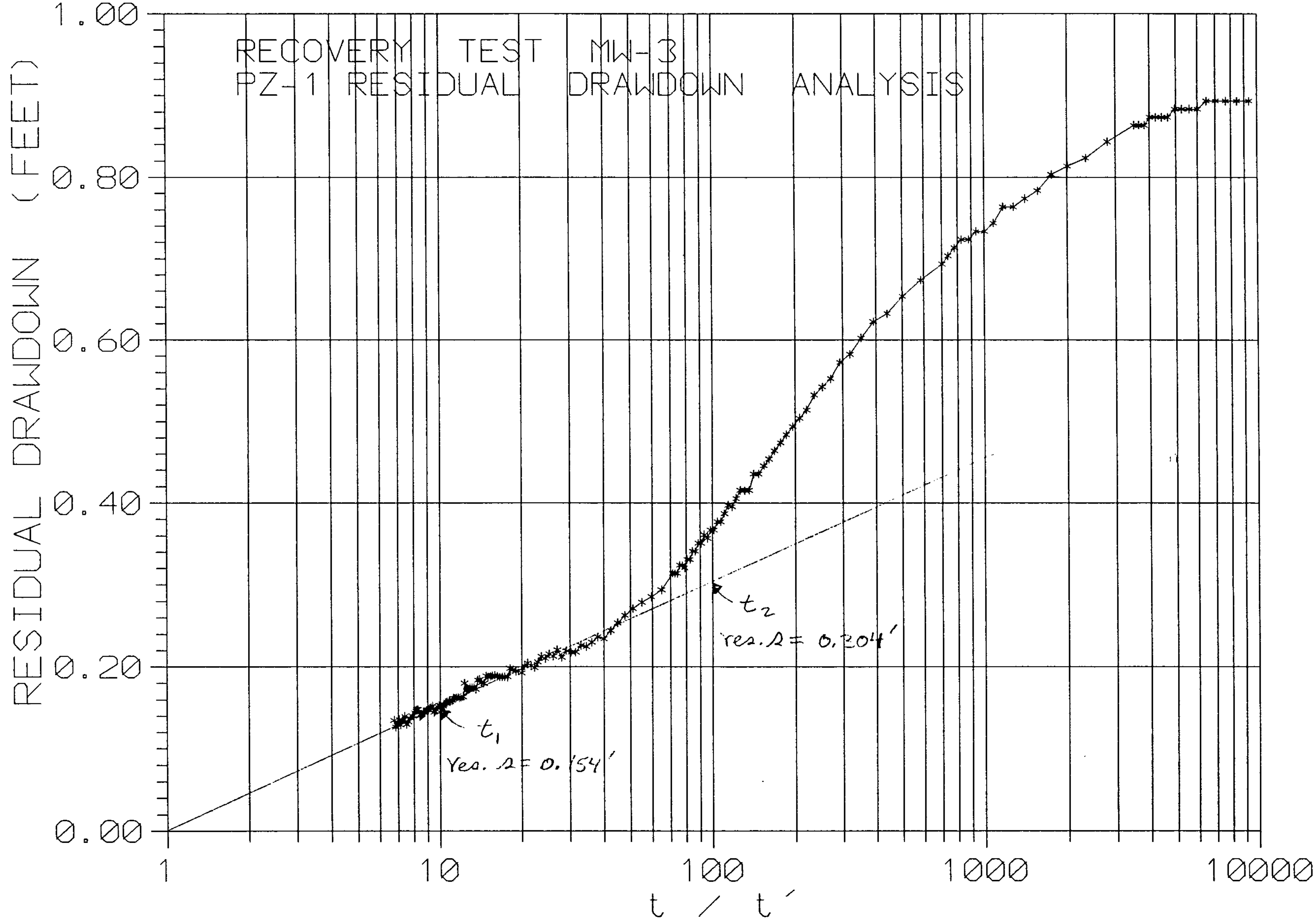
Using Residual Drawdown Method

- manually measured water levels
- plot suggests use of only last 2 data points
  i.e., $t/t' = 3.3$ and 17

$$T = \frac{35.23\ Q}{\Delta s_{\text{log cycle}}}$$

$$= \frac{35.23\ (0.08\ \text{gal/min})}{0.435\ \text{ft} - 0.27\ \text{ft}}$$

$$= 17.1\ \text{ft}^2/\text{day}$$



RECOVERY TEST MW-3
PZ-1 RESIDUAL DRAWDOWN ANALYSIS
RESIDUAL DRAWDOWN (FEET)
1.00
0.80
0.60
0.40
0.20
0.00
1
10
100
1000
10000
t / t´
t₁
res. s = 0.154'
t₂
res. s = 0.204'

PROJECT DETROIT ARSENAL PUMPING TEST HYDRAULIC ANALYSIS	COMP. BY LCD	JOB NO. 07027-01
	CHK. BY	DATE 7-16-93

MW-3 TEST: Recovery of PZ-1

Using Residual Drawdown Method

- Water levels collected by transducer / data logger
- plot shows straight line fit from less than $t/t' = 40$

$$T = \frac{35.23\,Q}{\Delta s_{\log\,cycle}}$$

$$= \frac{35.23\,(0.08\ gal/min)}{0.304\ ft - 0.154\ ft}$$

$$= 18.8\ ft^2/day$$

$$S = \frac{2.25\,T\,t_0}{r^2\left[\frac{t_{d+r}}{t_{d+r} - t_d}\right]^n}$$

Eq. in Ballukraya and Sharma (1991)

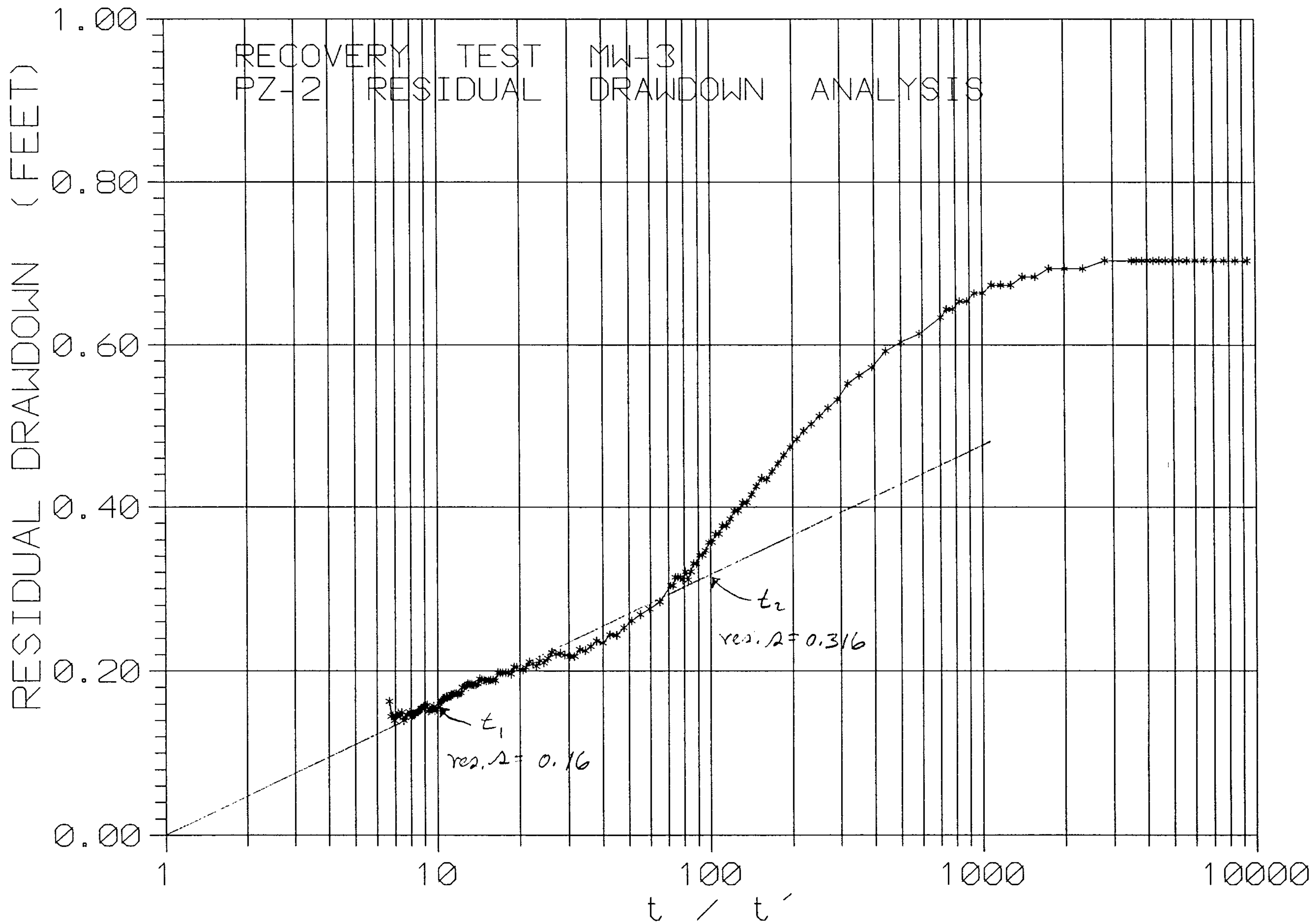
$$= \frac{2.25\,(18.8)(2.0\ days)}{(10\ ft)^2\left[\frac{5.41\ days}{5.41 - 2.0\ days}\right]^{\frac{0.89}{0.15}}}$$

$$= \frac{84.6}{(100)(15.46)}$$

$$= 0.054$$

FORM 00.01 REV. 4/81

ABB Environmental Services, Inc.


RECOVERY TEST MW-3
PZ-2 RESIDUAL DRAWDOWN ANALYSIS
RESIDUAL DRAWDOWN (FEET)
1.00
0.80
0.60
0.40
0.20
0.00
1
10
100
1000
10000
t / t´
t₁
res. s = 0.16
t₂
res. s = 0.316

PROJECT DETROIT ARSENAL PUMPING TEST HYDRAULIC ANALYSIS	COMP. BY LLD	JOB NO. 07027-01
	CHK. BY	DATE 7-16-93

MW-3 TEST: Recovery of PZ-2

Using Residual Drawdown Method

- water levels collected by transducer/data logger
- straight line fit on plot defined by points less than t/t' = 26

$$T = \frac{35.23\,Q}{\Delta s_{\log\ cycle}}$$

$$= \frac{35.23\,(0.08\ \text{gal/min})}{0.316\ \text{ft} - 0.160\ \text{ft}}$$

$$= 18.1\ \text{ft}^2/\text{day}$$

$$S = \frac{2.25\,T\,t_o}{r^2\left[\frac{t_{d+r}}{t_{d+r} - t_d}\right]^n}$$

Eq. in Ballukraya and Sharma (1991)

$$= \frac{2.25\,(18.1\ \text{ft}^2/\text{d})(2.0\ \text{d})}{(20\ \text{ft})^2\left[\frac{5.41\ \text{d}}{5.41 - 2.0\ \text{d}}\right]^{\frac{0.70}{0.16}}}$$

$$= \frac{81.45}{(400)(7.53)}$$

$$= 0.027$$

PROJECT	COMP. BY	JOB NO.
Calculations of GW Flow Velocity	gdriscole	7027-01
	CHK. BY	DATE 8/10/93

$$\bar{v} = \frac{K_h}{n} \cdot \frac{\partial h}{\partial l}$$

$\bar{v}$ = average linear velocity
K_h = hydraulic conductivity
n = porosity
$\frac{\partial h}{\partial l}$ = ~~of~~ hydraulic gradient

$$\bar{v}_{MW003-MW008} = \frac{1.5 \times 10^{-4}\ \text{cm/sec}}{0.04} \cdot \frac{(621.11' - 617.75')}{260'} = 4.8 \times 10^{-5}\ \text{cm/sec}$$

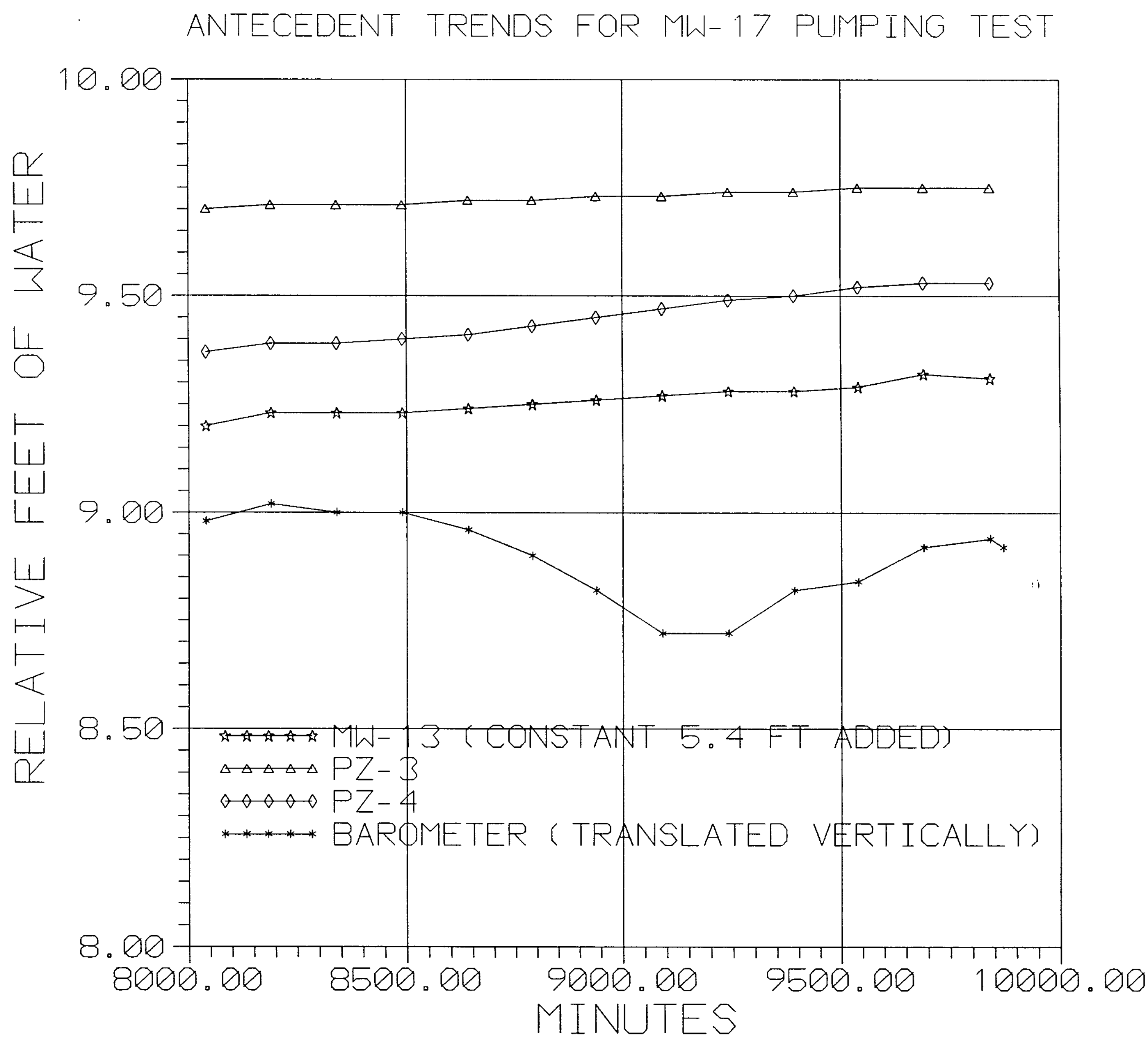
$$\approx 50\ \text{ft/yr}$$

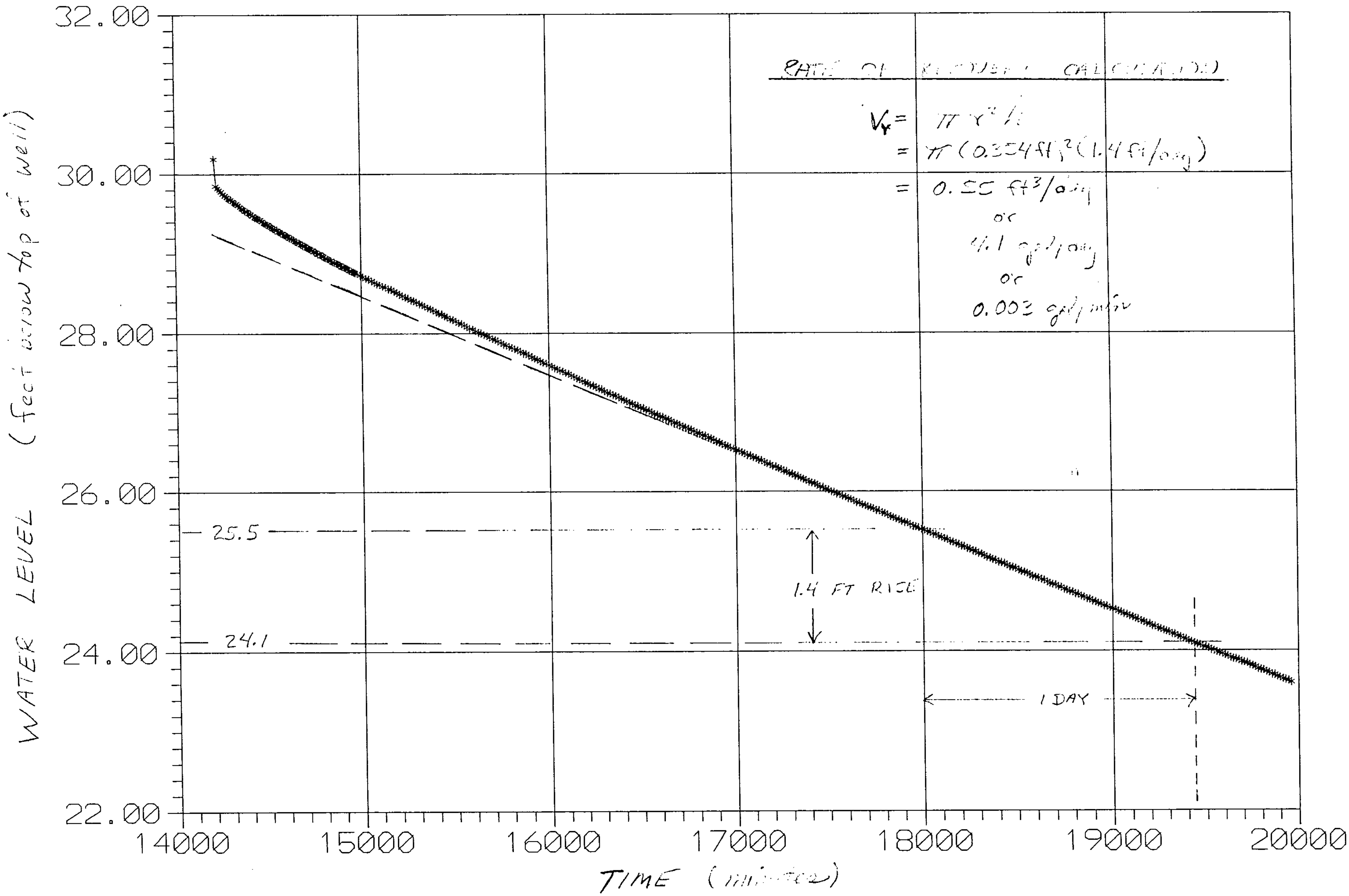
$$\bar{v}_{MW004-MW014} = \frac{1.5 \times 10^{-4}\ \text{cm/sec}}{0.04} \cdot \frac{(618.23' - 613.89')}{1640'} = 9.9 \times 10^{-6}\ \text{cm/sec}$$

$$\approx 10\ \text{ft/yr}$$

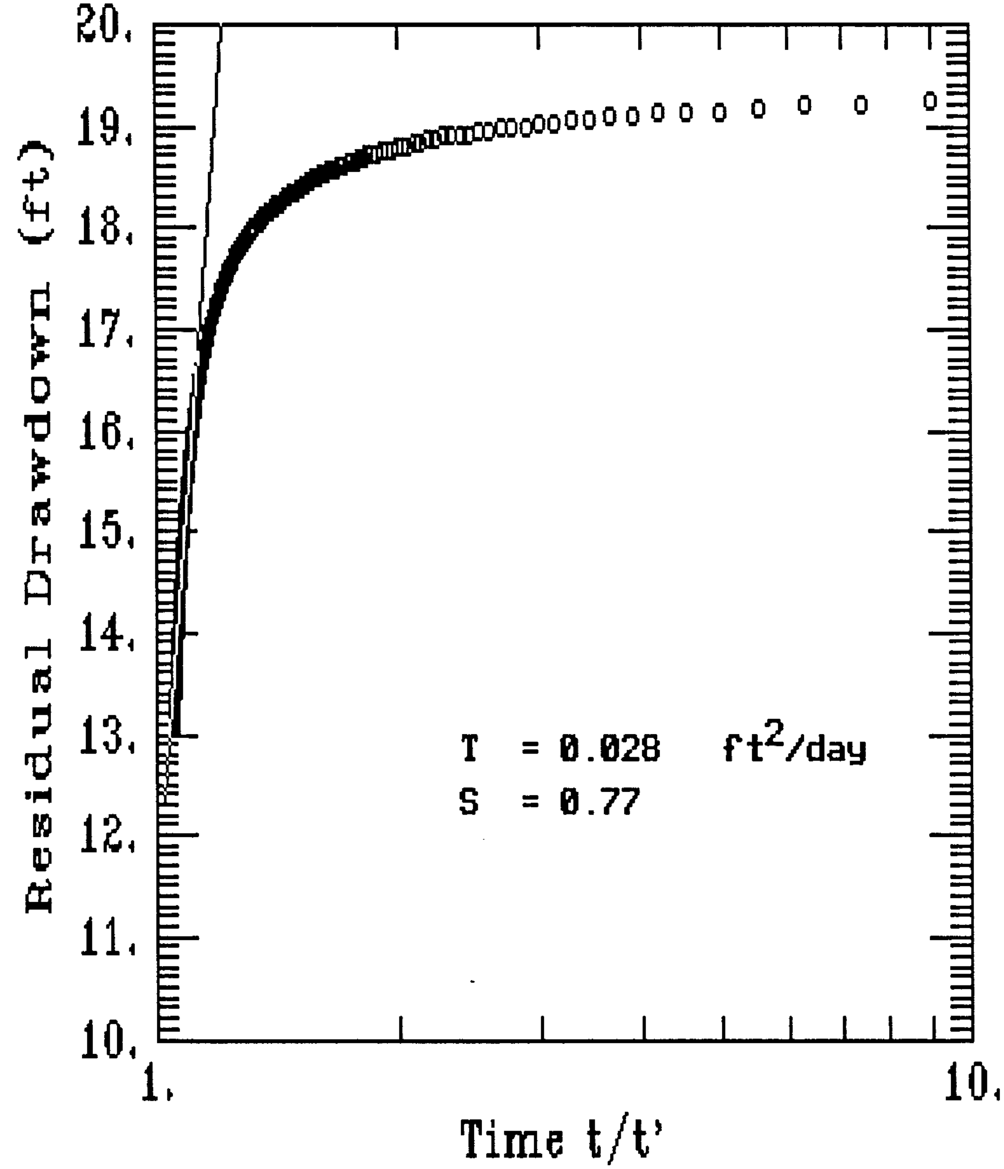
APPENDIX F

MW017 DATA PLOTS


ANTECEDENT TRENDS FOR MW-17 PUMPING TEST
10.00
9.50
9.00
8.50
8.00
RELATIVE FEET OF WATER
8000.00
8500.00
9000.00
9500.00
10000.00
MINUTES
MW-13 (CONSTANT 5.4 FT ADDED)
PZ-3
PZ-4
BAROMETER (TRANSLATED VERTICALLY)



RECOVERY RESPONSE OF MW-17 (pumped well)



RESIDUAL DRAWDOWN ANALYSIS OF MW-17 RECOVERY

PROJECT	COMP. BY	JOB NO.
Detroit Arsenal	LCD	07027-01
	CHK. BY	DATE 7-13-93

MW-17 Recovery Analysis
Using Residual Drawdown Method

plotted residual drawdown 10 to 130 ft on Y
vs. t/t' 1 to 10 on log X

extrapolated very left curved tip of plot
to intersect 110 feet on Y
and residual drawdown per log cycle is
$\Delta s = 110 - 10 = 100$ ft roughly

$$T = \frac{2.3\,Q}{4\pi(\Delta s)}$$

$$= \frac{2.3(0.08 \text{ gal min}^{-1})(1440 \text{ min day}^{-1})}{4\pi(100 \text{ ft})(7.48 \text{ gal ft}^{-3})}$$

$$= 0.028 \text{ ft}^2/\text{day}$$

$$K = \frac{T}{b} = \frac{0.028 \text{ ft}^2 \text{ day}^{-1}}{30 \text{ ft}} = 9.4 \times 10^{-4} \text{ ft/day}$$

or

3.3×10^{-7} cm/sec

DETROIT ARSENAL

3-8-93
LLD

Computation of Well Storage Depleted

MW-17 Pumping Well (Test 2)

Total Drawdown ~ 16 ft

Hole Radius = 8½" diam / 2 = 0.354 ft
w/ sand pack around 15 ft screen.

Worst case: assume full borehole radius of 8½" stored H_2O the full distance of drawdown

$$\text{Volume storage} = \pi r^2 h$$
$$= \pi (.354)^2 (16)$$
$$= 6.30 \text{ ft}^3 \quad \text{or} \quad 47 \text{ gal}$$

Ave pumping rate was 0.08 gal/min, so

Time to pump out stored water:

$$t = \frac{\text{volume}}{\text{rate}} = \frac{47 \text{ gal}}{.08 \text{ gal/min}} = 588 \text{ min}$$

$$t_{dd} = 312 \text{ min}$$

Conclusion: Essentially all pumped water could have been well storage

APPENDIX G

GROUNDWATER SAMPLING: LETTER REPORTS AND ANALYTICAL DATA

ROUND 1 LETTER REPORT

ASEA BROWN BOVERI

9302046.WP/CR410
7027-01

February 5, 1993

Mr. James Zeisloft
USATHAMA
CETHA-IR-A
Building 4480
Aberdeen Proving Grounds, MD 21010-5401

Subject: Letter Report - Groundwater Sampling, Round 1
Detroit Arsenal, Warren, Michigan

Dear Mr. Zeisloft:

The purpose of this letter is to document round 1 groundwater sampling of seven monitoring wells on the Detroit Arsenal property in Warren, Michigan (Figure 1). This program was conducted by ABB Environmental Services, Inc., (ABB-ES) under the direction of the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA).

Groundwater samples were collected from MW001, MW002, MW004, MW010, MW014, MW016 and MW018; locations are shown on Figure 2. After removal of each well cap, ambient air and air in the mouth of the well were measured with a Draeger pump equipped with a 0.5/a vinyl chloride tube. No organic vapors or vinyl chloride were detected at any well. Prior to groundwater sampling, the static water level was measured from the top of the well casing (Table 1) and the amount of water present in each well was calculated.

With approval from Dennis Bowser, USATHAMA's geologist, a Keck SP-81 submersible pump with teflon tubing was used to purge each well. Wells were purged at a rate of 1.3 gallons per minute until five casing volumes had been removed or the well went dry (Table 2). After purging, the well was allowed to recover overnight. Prior to sampling the following day (MW-14 required two days to recover), water levels were recorded and one casing volume was purged. During well evacuation, groundwater temperature, pH, and specific conductance were measured a minimum of five times.

Groundwater samples to be analyzed for semivolatile compounds, pesticides/PCB's, nitrate/nitrite, sulfate, cyanide, oil and grease, and total recoverable petroleum hydrocarbons were collected with the submersible pump. Groundwater samples for dissolved metals analysis were collected with the submersible pump; at each well a new .45-micron disposable filter was installed in the discharge line. Groundwater samples to be analyzed for volatile organic compounds (VOCs) were collected with a new disposable polyethylene bailer. Sample bottles were triple-rinsed with ASTM Type II water prior to sample collection. After processing, preserving, and labeling, all samples were kept on ice in coolers until delivery to the laboratory via overnight carrier.

One trip blank to be analyzed for VOCs was collected during mobilization. The trip blank consisted of the ASTM Type II water used for decontamination. It was collected and preserved in the same

ABB Environmental Services of Michigan, Inc.

39255 Country Club Drive B-25
P. O. Box 2055
Farmington Hills, Michigan 48333-2055

Telephone
(313) 489-8040

Fax:
(313) 489-8048

manner that field samples were to be handled and then placed on ice in a cooler dedicated to VOC samples. One rinsate blank using ASTM Type II water was collected after purging MW014 and decontaminating the pump.

On the afternoon of January 25, 1993, ABB-ES was informed that access to the test track area would be denied due to classified tests in the area. As a result, access to MW001, MW002, MW004, and MW010 was not available until January 27, 1993.

Groundwater sampling was completed on January 28, 1993.

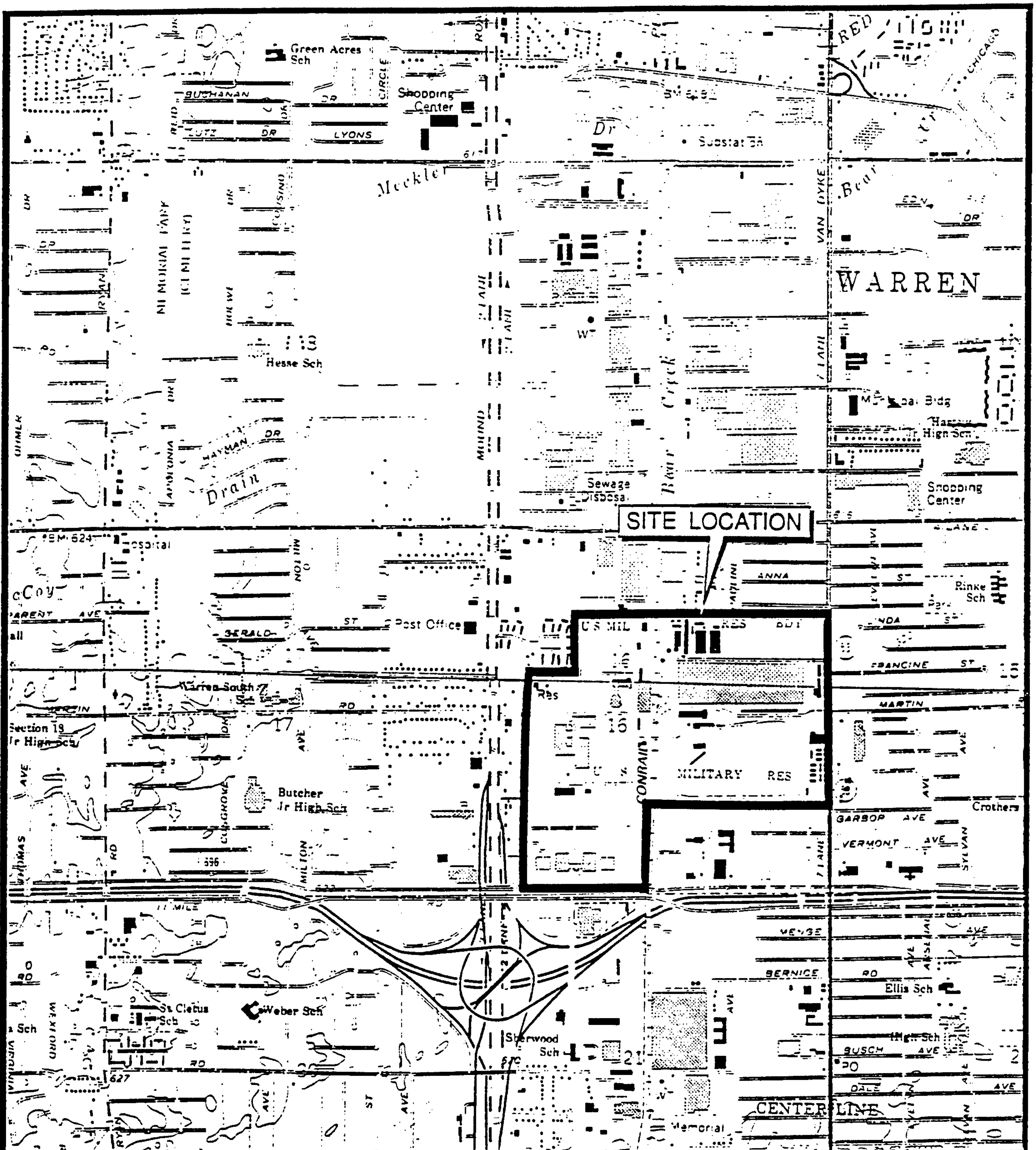
Sincerely,

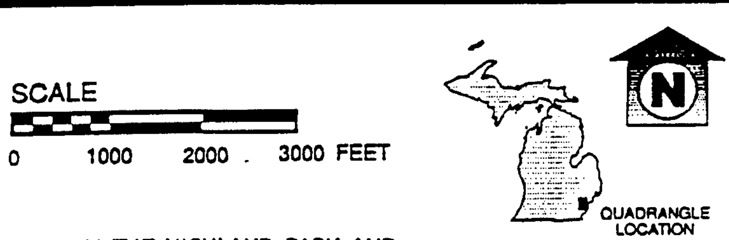
ABB ENVIRONMENTAL SERVICES, INC.

Greta D. Reade

Greta D. Reade
Project Manager

GDR/bkl

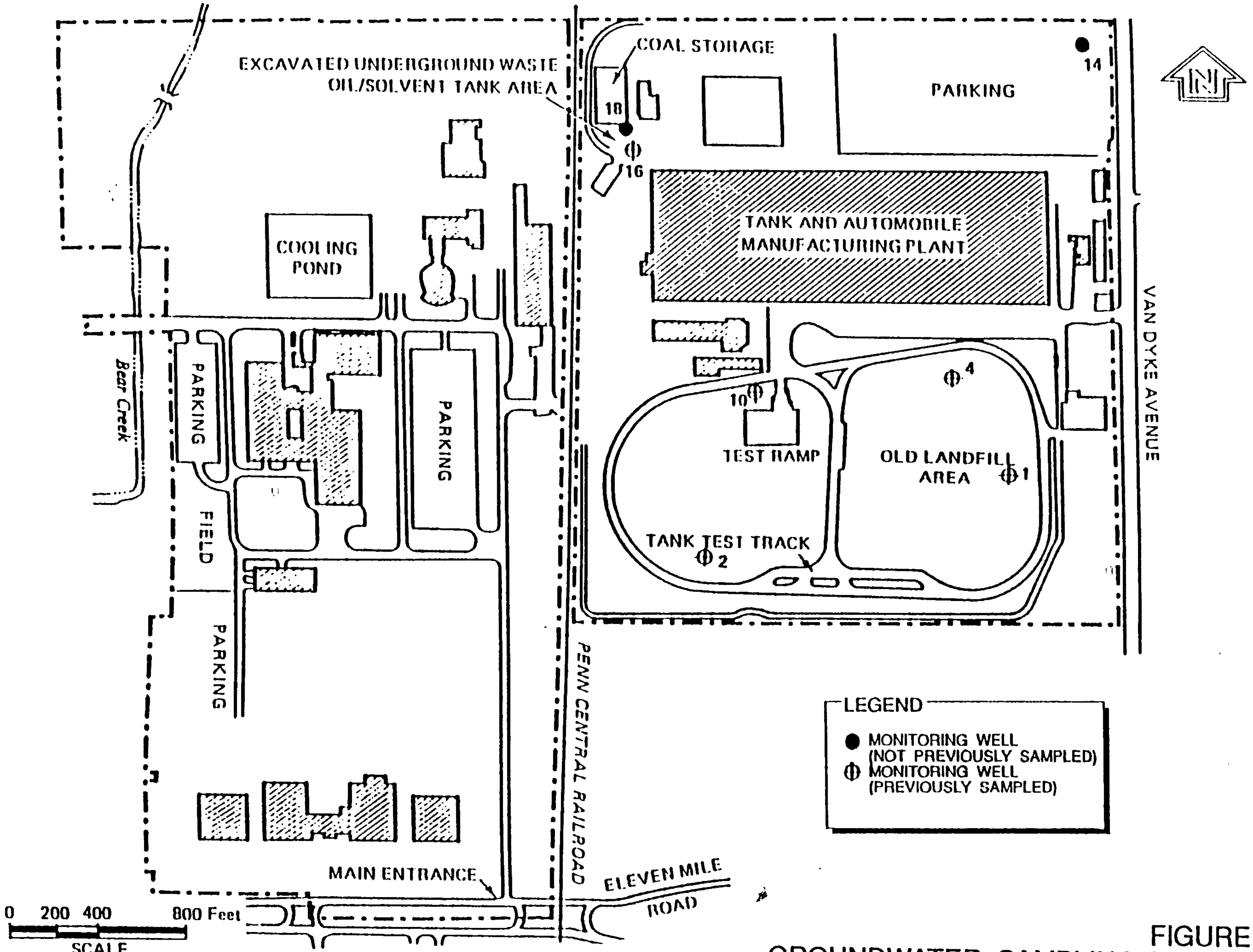




TAKEN FROM THE HIGHLAND PARK AND
WARREN MICHIGAN, USGS, 7.5 SERIES QUADRANGLE.

FIGURE 1
SITE LOCATION
DETROIT ARSENAL

ABB ENVIRONMENTAL SERVICES, INC.



SOURCE: U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT, 1987,
AS PRESENTED IN DAMES & MOORE, FINAL REPORT, 1990 QUARTERLY
MONITORING PROGRAM, DECEMBER 20, 1990.

FIGURE 2
GROUNDWATER SAMPLING LOCATIONS
DETROIT ARSENAL

ABB ENVIRONMENTAL SERVICES, INC.

TABLE 2
SAMPLE DATA
DETROIT ARSENAL
WARREN, MICHIGAN

WELL	VOLUME PURGED BY PREVIOUS CONSULTANT (GALLONS) 9/84	VOLUME PURGED BY ABB-ES (GALLONS)					SAMPLE DATE	SAMPLE TIME	SAMPLE DESIGNATION
		1/25/93	1/26/93	1/27/93	1/28/93	TOTAL VOLUME PURGED (GALLONS)			
Rinsate Blank	NA						1/25/93	16:45	RBLK-1
Trip Blank	NA						1/25/93	10:00	TBLK-1
MW001	80			82	40	122	1/28/93	11:15	DAW1*01
MW002	53			66*	24	90	1/28/93	13:45	DAW1*02
MW004	48			60*	23	83	1/28/93	12:15	DAW1*04
MW010	56			67*	31	98	1/28/93	10:00	DAW1*10
MW014	93	53*	**	31		84	1/27/93	10:05	DAW1*14
MW016	27		23*	13		36	1/27/93	11:20	DAW1*16
MW018	38		40*	39		79	1/27/93	13:15	DAW1*18

NOTES:

* Well purged dry on this date.

** Insufficient recovery to sample on this date.

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS
JANUARY 25,1993

DETROIT ARSENAL
WARREN, MICHIGAN

WELL	TOP OF RISER ELEVATION (FEET)	DEPTH TO WATER (FEET)	GROUNDWATER ELEVATION (FEET)
MW001	627.76	3.11	624.65
MW002	625.84	3.54	622.30
MW004	627.03	6.47	620.56
MW010	624.79	4.59	620.20
MW014	621.36	6.51	614.85
MW016	622.58	7.46	615.12
MW018	623.39	8.39	615.00

NOTE: Measurements were taken with a Solinst water level meter.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL — JOB NO. 7027-03 — DATE: 27+28 JAN 93 see back

SAMPLE LOCATION MW001 — LAB NUMBER ______

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ___ FT — [ ] TOP OF WELL [X] TOP OF CASING [ ] ___

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ___

WATER DEPTH 3.11 FT 1-25-93

DRAEGER AMBIENT Ø ppm WELL MOUTH Ø ppm

MONITORING: FID: AMBIENT AIR Ø PPM WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH 34.2 FT — [ ] TOP OF WELL [ ] TOP OF CASING [ ] ___

WELL MATERIAL: [X] PVC [ ] SS [ ] ___

PROTECTIVE CASING STICK-UP (FROM GROUND) ___ FT

Purge water and ambient air were monitored with OVA(FID) and Draeger Tubes. No ~~water~~ readings were detected by either instrument.

PURGE DATA

HEIGHT OF WATER COLUMN 31.09 FT 1-25-93

Total Purge Volume = [Bottom Depth (34.2) − Static Water Level (A)] x 0.65 gal/ft + [Area of Borehole − Area of MW] x Sandpack (ft) 26.4 x Sandpack Porosity (0.30) x 7.48 gal/ft³ = ______ TOTAL PURGE VOLUME (GAL.)

1-27-93 PURGE TIME START 1511 END 1613

1-28-93 SAMPLE TIME START 1115 END 1140

PURGE VOLUME 1-27-93	@ 3 GAL	@ 26 GAL	@ 46 GAL	@ 67 GAL	@ 81 GAL	@ 98 gal
TEMP, DEG C	9.7	~~9.3~~ 7.3	8.8	9.8	9.9	9.8
pH, UNITS	7.41	7.36	7.27	7.28	7.26	7.35
SPECIFIC CONDUCTIVITY, umhos/cm	2060	2160	2040	1970	1960	2160

KLM

$TPV = (34.2 - A).65 + 15.58 = 35.79$

EQUIPMENT DOCUMENTATION

NOTE: Keck pump was deconned by pumping with ASTM Type II water through pump and lines. Pump was rinsed on outside with the type II water.

PURGING / SAMPLING — EQUIPMENT ID

- [ ] [ ] PERISTALTIC PUMP
- [X] [X] SUBMERSIBLE PUMP (Keck)
- [ ] DISP. [X] BAILER (PVC/SS/TEFLON) (VOCs)
- [ ] [ ] PVC/SILICON TUBING
- [ ] [ ] TEFLON/SILICON TUBING
- [ ] [ ] AIR LIFT
- [ ] [ ] WATERRA
- [X] IN-LINE FILTER (METALS)
- [ ] PRESS/VAC FILTER
- [ ] [ ] ___

DECON FLUIDS USED

- [ ] ETHYL ALCOHOL
- [ ] DEIONIZED WATER
- [ ] HNO3/D.I. WATER
- [ ] POTABLE WATER
- [ ] TSP SOLUTION
- [X] NONE (DISPOSABLE BAILER)
- [X] ASTM Type II water

~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

WATER LEVEL EQUIP. USED

- [ ] ELECTRIC COND. PROBE
- [ ] FLOAT ACTIVATED
- [ ] KECK INTERFACE PROBE
- [X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED ___

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW1*01-VP	VOC	UM20	2x40ml	A. GLASS	NO	HCl <2
DAW1*01-MS	SVOC	UM18	2x1L	A. GLASS	NO	—
DAW1*01-EC	PEST./PCB	UH13/UH02	2x1L	A. GLASS	NO	—
DAW1*01-NF	DIS. METALS	SS10/SDxx/SB01	1L	POLY.	YES	HNO_3 <2
DAW1*01-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW1*01-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW1*01-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW1*01O	OIL + GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
N1*01-O	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

SIGNATURE Kelly Lamish / Tom Winebrenner

SIGNATURE/FUNCTION: see backside

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

NOTES

MW-01

) 1-25-93
- Collect water level = 3.11' Below TOC

No work done on 1-26-93.

3) 1-27-93
- purge well from 1511 to 1613 at 1.33 gal./min ≈ 82.46 gallons.

4) 1-28-93
- Collect water level ≈ 2.64' Below TOC
- purge well from 1045 to 1115 @ 1.33 gal./min. ≈ 39.9 gallons.
- collect groundwater sample @ 1140

5) Total gallons purged from well ≈ 82.46 + 39.9 ≈ 122.36 gallons

6.) Sampling Procedure
- purge well w/ Keck pump
- Collect all samples with Keck pump except for VOC sample. A 0.45 micron in-line filter was attached to the Keck discharge line for the dissolved metals sample.
- pull Keck pump out of the well and gently lower disposable bailer down well and collect VOC sample.
- preserve all samples in the filter.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: 25,27&28 JAN93

See back ~~6.20~~ ~~Any~~ KLM

SAMPLE LOCATION MW002 LAB NUMBER ______

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [X] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH 3.54 FT

DRAEGER AMBIENT Ø ppm WELL MOUTH Ø ppm

MONITORING: FID: AMBIENT AIR Ø PPM WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH 33.7 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

Purge water and Ambient air were monitored with OVA and Draeger Tube. No readings were detected by either instrument.

PURGE DATA

HEIGHT OF WATER COLUMN 30.16 FT m 1-25-93

Total Purge Volume = (Bottom Depth 33.7 − Static Water Level (A)) x 0.65 gal/ft +

(Area of Borehole − Area of MW) x Sandpack (ft) 26.2 x Sandpack Porosity (0.30) x 7.48 gal/ft³ = ______ TOTAL PURGE VOLUME (GAL.)

1-27-93 PURGE TIME START 1730 END 1820

1-28-93 SAMPLE TIME START ~~1215~~ 1345 END 1420

1-27-93 slightly turbid

PURGE VOLUME	@ 6 GAL	@ 26 GAL	@ 50 GAL	@ 66 GAL	@ 76 GAL
TEMP, DEG C	8.3	7.2	9.3	9.2	9.3
pH, UNITS	7.49	7.56	7.41	7.42	7.46
SPECIFIC CONDUCTIVITY, umhos/cm	1320	1270	1350	1340	1369

TPV = (33.7 − A).65 + 15.46 ≈ 35.06 ~~6.~~

EQUIPMENT DOCUMENTATION

NOTE: Keck pump was decond by pumping ASTM Type II water through pump and lines. Outside of pump was rinsed with the Type II water.

PURGING / SAMPLING / EQUIPMENT ID

[ ] [ ] PERISTALTIC PUMP ______
[X] [X] SUBMERSIBLE PUMP Keck ______
[ ] DISP. [X] BAILER (PVC/SS/TEFLON) VOCs ______
[ ] [ ] PVC/SILICON TUBING
[ ] [ ] TEFLON/SILICON TUBING
[ ] [ ] AIR LIFT
[ ] [ ] WATERRA
[X] IN-LINE FILTER (METALS) ______
[ ] PRESS/VAC FILTER
[ ] [ ] ______ ______

DECON FLUIDS USED

[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[X] NONE (DISPOSABLE BAILER)
[X] ASTM Type II water
~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

WATER LEVEL EQUIP. USED

[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED ______

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW1*02-VP	VOC	UM20	2×40ml	A. GLASS	NO	HCl <2
DAW1*02-MS	SVOC	UM18	2×1L	A. GLASS	NO	—
DAW1*02-EC	PEST./PCB	UH13/UH02	2×1L	A. GLASS	NO	—
DAW1*02-NF	DIS. METALS	SS10/SDxx/SD01	1L	POLY.	YES	HNO_3 <2
DAW1*02-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW1*02-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW1*02-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW1*020	OIL+GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
W1*020	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

SIGNATURE K. M. [illegible] / Tom Winebrenner

SIGNATURE/FUNCTION: see back

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

MW-02

NOTES

① 1-25-93

-collect water level reading = 3.54' Below TOC

② 1-26-93

- no work done at this location

③ ~~pd~~ 1-27-93

- purge well from 1730 to 1820 (well dry) at 1.338 gal/min = 66.5 gallons

④ ~~Fr~~ 1-28-93

- collect water level reading = 6.85' Below TOC
- purge well from 1327 to 1345 at 1.338 gal/min = 23.94 gallons
- sample well at 1345

⑤ Total gallons purged from well = 66.5 + 23.94 = 90.44 gallons

⑥ Sampling Procedure

- purge well with Keck pump
- Collect all samples with Keck pump except for VOC sample. A 0.45 micron in-line filter was attached to the Keck pump discharge line for the dissolved metals sample.
- Pull Keck pump from well and gently lower disposable bailer down well and collect VOC sample.
- preserve all samples in field.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: 25,27&28 JAN93
See back

SAMPLE LOCATION MW004 LAB NUMBER

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH / FT
[ ] TOP OF WELL
[X] TOP OF CASING
[ ]

WELL DIAM.
[ ] 2 INCH
[X] 4 INCH
[ ] 6 INCH
[ ]

WATER DEPTH 6.47 on 1-25-93 FT
DRAEGER AMBIENT Ø ppm
WELL MOUTH Ø ppm

MONITORING: FID:
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

Purge water and ambient air were monitored with OVA and Drager Tube. No readings were detected by either instrument.

HISTORICAL WELL DEPTH 34 FT
[ ] TOP OF WELL
[ ] TOP OF CASING
[ ]

WELL MATERIAL:
[X] PVC
[ ] SS
[ ]

PROTECTIVE CASING STICK-UP (FROM GROUND) FT

PURGE DATA

HEIGHT OF WATER COLUMN 27.53 on 1-25-93 FT

Total Purge Volume = (Bottom Depth 34.0 - Static Water Level (A)) x 0.65 gal/ft +

(Area of Borehole - Area of MW) x Sandpack (ft) 25.9 x Sandpack Porosity (0.30) x 7.48 gal/ft.³ = TOTAL PURGE VOLUME (GAL.)

1-27-93 PURGE TIME START 1625 END 1710

1-28-93 SAMPLE TIME *START 1215 END 1300

	1-27-93			1-27-93	1-28-93
PURGE VOLUME	@ 5 GAL	@ 26 GAL	@ 52 GAL	@ 56 GAL	@ 75 GAL
TEMP, DEG C	9.9	8.8	10.4	10.6	10.5
pH, UNITS	7.48	7.25	7.25	7.41	7.36
SPECIFIC CONDUCTIVITY, umhos/cm	1560	1600	1010	1690	1610

TPV = (34-A).65 + 15.28 = 33.17 casing + sandpack Volume.

Well Dry at 59.85 gallons

EQUIPMENT DOCUMENTATION

NOTE: Keck pump was decomed by pumping ASTM Type II water through pump and lines. Outside was rinsed w/ Type II water.

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP (Keck)	
[ ] DISP.	[X] BAILER (PVC/SS/TEFLON)	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ]	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[X] NONE (DISPOSABLE BAILER)
[X] ASTM Type II water

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED

~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW1*04VP	VOC	UM20	2x40ml	A. GLASS	NO	HCl <2
DAW1*04-MS	SVOC	UM18	2x1L	A. GLASS	NO	—
DAW1*04-EC	PEST./PCB	UH13/UH02	2x1L	A. GLASS	NO	—
DAW1*04-NF	DIS. METALS	SS10/SDXX/SB01	1L	POLY.	YES	HNO_3 <2
DAW1*04-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW1*04-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW1*04-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW1*04O	OIL + GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
V1*04O	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

SIGNATURE Kelly Q. Misch / Tom Winebrenner
SIGNATURE/FUNCTION: See backside

90303.WP
REVISED 3/90

MW-4

NOTES

① 1-25-93
- collect water level = 6.47' Below TOC

② 1-26-93 > no work done at this location

③ 1-27-93 >
- purge well from 1625 to 1710 (well dry) at 1.33 gal/min ≈ 59.85 gal.

④ 1-28-93 >
- collect water level = 7.08' Below TOC
- purge well from 11.58 to 1215 at 1.33 gal./min. = 22.61 gallons
- collect groundwater sample at 1215

⑤ Total gallons purged from well = 59.85 + 22.61 ≈ 82.46 gallons

⑥ Sampling Procedure
- purge well with Keck pump
- collect all samples with Keck pump except for VOC sample. A 0.45 micron Filter (in-line) was attached to the Keck pump discharge line for the dissolved metals sample.
- pull Keck pump out of well and gently lower disposable bailer down well and collect VOC sample.
- preserve all samples in Field.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: JAN93

SAMPLE LOCATION MW010 LAB NUMBER

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [X] TOP OF CASING [ ]

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ]

WATER DEPTH ~~3.11~~ 4.59 FT KLM

DRAEGER AMBIENT Ø ppm WELL MOUTH Ø ppm

MONITORING: FID: AMBIENT AIR Ø PPM WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH 34.3 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ]

WELL MATERIAL: [X] PVC [ ] SS [ ]

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

Purge water and ambient air were monitored with OVA (FID) and Drager tubes. No readings were detected in either instrument.

PURGE DATA

HEIGHT OF WATER COLUMN 29.71 FT on 1-25-93

Total Purge Volume = [Bottom Depth 34.3 − Static Water Level (A)] x 0.65 gal/ft +

[Area of Borehole − Area of MW] x Sandpack (ft) 26.3 x Sandpack Porosity (0.30) x 7.48 gal/ft³ = ______ TOTAL PURGE VOLUME (GAL.)

1-27-93 PURGE TIME START 1400 END 1450

1-28-93 SAMPLE TIME START 10:00 END 1030

	1-27-93				1-28-93	
PURGE VOLUME	@ 3 GAL	@ 26 GAL	@ 50 GAL	@ 66 GAL	@ 70 GAL	@ 85
TEMP, DEG C	10.8	8.4	11.3	11.5	10.6	11.2
pH, UNITS	8.24	7.68	7.13	7.25	7.84	7.66
SPECIFIC CONDUCTIVITY, umhos/cm	3410	1472	3360	3580	2740	3120

TPV = (34.3 − A).65 + 15.52 = ~~35.79~~ KLM 34.83 | well dry at 66.5 gallons at 1450

EQUIPMENT DOCUMENTATION

Note: Keck pump was decond by pumping with ASTM Type II water through pump and lines. Pump was also rinsed on outside with the type II water.

PURGING / SAMPLING:
- [ ] [ ] PERISTALTIC PUMP
- [X] [X] SUBMERSIBLE PUMP (Keck)
- [ ] DISP. [X] BAILER (PVC/SS/TEFLON) (VOCs)
- [ ] [ ] PVC/SILICON TUBING
- [ ] [ ] TEFLON/SILICON TUBING
- [ ] [ ] AIR LIFT
- [ ] [ ] WATERRA
- [X] IN-LINE FILTER (METALS)
- [ ] PRESS/VAC FILTER
- [ ] [ ]

EQUIPMENT ID

DECON FLUIDS USED:
- [ ] ETHYL ALCOHOL
- [ ] DEIONIZED WATER
- [ ] HNO3/D.I. WATER
- [ ] POTABLE WATER
- [ ] TSP SOLUTION
- [X] NONE (DISPOSABLE BAILER)
- [X] ASTM Type II water

~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

WATER LEVEL EQUIP. USED:
- [ ] ELECTRIC COND. PROBE
- [ ] FLOAT ACTIVATED
- [ ] KECK INTERFACE PROBE
- [X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED ____

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAWI*10-VP	VOC	UM20	2×40ml	A. GLASS	NO	HCl <2
DAWI*10-MS	SVOC	UM18	2×1L	A. GLASS	NO	—
DAWI*10-EC	PEST./PCB	UH13/UH02	2×1L	A. GLASS	NO	—
DAWI*10-NF	DIS. METALS	SS10/SDXX/SB01	1L	POLY.	YES	HNO_3 <2
DAWI*10-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAWI*10-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAWI*10-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAWI*10-O	OIL + GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
VI*10-O	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

SIGNATURE Kelly Q Mich / Tom Winebrenner

SIGNATURE/FUNCTION: see back side.

90303.WP
REVISED 3/90

NOTES

MW-10

1) 1-25-93
- Collect water level reading = 4.59' below TOC

2) 1-26-93
- no work was done at this location

3) 1-27-93
- purge with Keck pump from 1400 to 1450 @ 1.33 gal/min = 66.5 gallons
- well purged dry.

4) 1-28-93
- collect water level = 6.15' Below TOC
- purge 0937 to 1000 at 1.33 gal/min = 30.59 gallons
- collect groundwater sample at 1000 hours

5) Total gallons purged from well = 66.5 + 30.59 = 97.09 gallons

6) Sampling Procedure
- purge well with Keck pump
- Collect all samples with Keck pump except for VOC sample. A 0.45 micron in-line filter was attached to the discharge line of the Keck pump for the dissolved metals sample
- pull Keck pump out of well and gently lower disposable bailer down well and collect VOC sample.
- preserve all samples in the field.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: 26 27 JAN 93

see back

SAMPLE LOCATION MW018 LAB NUMBER

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [X] TOP OF CASING [ ]

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ]

WATER DEPTH 8.39 FT

DRAEGER AMBIENT 0.0 ppm WELL MOUTH 0.0 ppm

MONITORING: FID: AMBIENT AIR 0.0 PPM WELL MOUTH 0.0 PPM

HISTORICAL WELL DEPTH 33.6 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ]

WELL MATERIAL: [X] PVC [ ] SS [ ]

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

Purge water and ambient air were monitored with OVA(FID) and Draeger tubes. No readings were detected in either instrument.

PURGE DATA

HEIGHT OF WATER COLUMN 25.21 FT on 1-26-93

Total Purge Volume = [Bottom Depth (33.6) − Static Water Level (A)] x 0.65 gal/ft + [Area of Borehole − Area of MW] x Sandpack (ft) (15.6) x Sandpack Porosity (0.30) x 7.48 gal/ft.³ = ______

PURGE TIME START 1253 END 1323 (27th) SAMPLE TIME START 1315 END (27th)

TOTAL PURGE VOLUME (GAL.)

	1-26-93			27 JAN 93	
PURGE VOLUME	≈ 5 GAL	≈ 12 GAL	≈ ~~13~~ 37 GAL	≈ 57 GAL	≈ 76 GAL
TEMP, DEG C	12.1	12.9	13.9	12.7	13.7
pH, UNITS	8.12	8.1	7.87	7.91	7.89
SPECIFIC CONDUCTIVITY, umhos/cm	1204	1171	1214	1398	1195

$TPV = (33.6 - A).65 + 9.2 = 25.59$

Slightly turbid when sampled

EQUIPMENT DOCUMENTATION

Note: Keck pump was decon'd by pumping with ASTM Type II water through pump and lines. Pump + lines were rinsed on the outside with the type II water.

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP (Keck)	
[ ] DISP.	[X] BAILER (PVC/SS/TEFLON)(VOCs)	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ]	

DECON FLUIDS USED
- [ ] ETHYL ALCOHOL
- [ ] DEIONIZED WATER
- [ ] HNO3/D.I. WATER
- [ ] POTABLE WATER
- [ ] TSP SOLUTION
- [X] NONE (DISPOSABLE BAILER)
- [X] ASTM TYPE II water

~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

WATER LEVEL EQUIP. USED
- [ ] ELECTRIC COND. PROBE
- [ ] FLOAT ACTIVATED
- [ ] KECK INTERFACE PROBE
- [X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED ____

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW1*18-VP	VOC	UM20	2x40ml	A. GLASS	NO	HCl <2
DAW1*18-MS	SVOC	UM18	2x1L	A. GLASS	NO	—
DAW1*18-EC	PEST./PCB	UH13/UH02	2x1L	A. GLASS	NO	—
DAW1*18-NF	DIS. METALS	SS10/SDXX/SD01	1L	POLY.	YES	HNO_3 <2
DAW1*18-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW1*18-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW1*18-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW1*18O	OIL + GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
V1*18-O	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

SIGNATURE Kelly D. Mish / Tom Winebrenner

SIGNATURE/FUNCTION: See backside

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

NOTES.

1-26-93 } Purge 38 gallons & well went dry

MW-18

NOTES

1) 1-25-93
- collect water level = 8.39' Below TOC

2) 1-26-93
- Purge well. From 1253 to 1323 at 1.33 gal/min = 39.9 gallons
well dry after pumping ≈ 39.9 gallons.

3) 1-27-93 - collect WL reading = 25.92' Below TOC
- Purge from 1243 to 1313 at 1.33 gal/min ≈ 39 gallons
- ~~Wate~~ collect ground water sample at 1315 hours
- Well dry at end of sampling!!

4) Total gallons purged = 39.9 + 39 = 78.9 gallons.

5) Sampling Procedure
- purge well with Keck pump
- collect all samples with Keck pump except VOCs, Note - A 0.45 micron In-line Filter was ~~used~~ KVM attached to the discharge line of Keck pump for the dissolved metals sample.
- pull Keck pump out of well and gently lower disposable bailer down well and collect VOC sample.
- Preserve all samples in the field.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: 26 JAN 93

See back

SAMPLE LOCATION MW016 LAB NUMBER

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [X] TOP OF CASING [ ]

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ]

WATER DEPTH 7.46 on 1-25-93 FT

DRAEGER AMBIENT Ø ppm WELL MOUTH Ø ppm

MONITORING: FID AMBIENT AIR Ø PPM WELL MOUTH Ø PPM

Purge water and ambient air were monitored with OVA (FID) and Draeger Tubes. No readings were detected from either instrument.

HISTORICAL WELL DEPTH 17.8 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ]

WELL MATERIAL: [X] PVC [ ] SS [ ]

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

HEIGHT OF WATER COLUMN ~~7.46~~ 10.34 on 1-25-93 FT

Total Purge Volume = [Bottom Depth (17.8) − Static Water Level (A)] x 0.65 gal/ft + [Area of Borehole − Area of MW] x Sandpack (ft) (10.7) x Sandpack Porosity (0.30) x 7.48 gal/ft³ = ______ TOTAL PURGE VOLUME (GAL.)

1-26-93 PURGE TIME START ~~1150~~ 1159 END 1215

1-27-93 SAMPLE TIME START 1120 END

	1-26-93		1-27-93		
PURGE VOLUME	a 13 GAL	a 19 GAL	a 22 GAL	a 32 GAL	a 34 GAL
TEMP, DEG C	9.8	11.1	10.3	11.2	11.1
pH, UNITS	8.24	7.68	7.97	7.86	7.84
SPECIFIC CONDUCTIVITY, umhos/cm	1710	1790	1690	1720	1718

TPV = (17.8 − A).65 + 6.3 = 13.02 x 5 = 65.1

Purged 23 gal. on 1-26-93

EQUIPMENT DOCUMENTATION

Note: Keck pump was deconed by pumping 6 gallons of ASTM Type II water through pump and lines. Pumped was rinsed on the outside as well.

PURGING / SAMPLING / EQUIPMENT ID

[ ] [ ] PERISTALTIC PUMP
[X] [X] SUBMERSIBLE PUMP (Keck)
[ ] DISP. [X] BAILER (PVC/SS/TEFLON) (VOCs)
[ ] [ ] PVC/SILICON TUBING
[ ] [ ] TEFLON/SILICON TUBING
[ ] [ ] AIR LIFT
[ ] [ ] WATERRA
[X] IN-LINE FILTER (METALS)
[ ] PRESS/VAC FILTER
[ ] [ ]

DECON FLUIDS USED

[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[X] NONE (DISPOSABLE BAILER)
[X] ASTM Type II water

~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

WATER LEVEL EQUIP. USED

[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED ____

SAMPLES COLLECTED

Sample clear when sampled

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW1*16-VP	VOC	UM20	2x40ml	A. GLASS	NO	HCl <2
DAW1*16-MS	SVOC	UM18	2x1L	A. GLASS	NO	—
DAW1*16-EC	PEST./PCB	UH13/UH02	2x1L	A. GLASS	NO	—
DAW1*16-NF	DIS. METALS	SS10/SDXX/SB01	1L	POLY.	YES	HNO_3 <2
DAW1*16-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW1*16-C	SULFATE	TT10	1L	PLASTIC	NO	
DAW1*16-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW1*160	OIL + GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
V1*160	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

SIGNATURE Kim J. Mish / Tom Winebrenner

SIGNATURE/FUNCTION: See backside.

MW-16

Notes:

① Collected Water Level on Mon. 1-25-92

② Purged 21 gallons on Tue. 1-25-92, well went dry
let well recharge for 15 min, than purged 2 gallons and well went dry
- purged 23 gallons on 1-26-93

NOTES

1) 1-25-93
- collected water level = 7.46' Below TOC.

2) 1-26-93
- Purge well with Keck pump from 1159 to 1215.
16 min @ 1.33 gal/min = 21.28 gallons and well dry.

- let well recover for 15 min. Than pumped 2 more gallons until Well went dry.

3) 1-27-93
- collect water level = 7.72' Below TOC
- Purge well from ~~1120 to~~ 1107 to 1117 at 1.33 gal/min.
- Purged 13 gallons
- Collected groundwater sample @ 1120

) Total gallons purged = ~~21.28~~ 23.28 KLM gal + 13 gal = ~~34.28~~ 36.28 KLM gallons

) Sampling Procedure
- Purge well with Keck pump
- Collect all samples with Keck pump except VOC samples. Note a 0.45 micron in-line filter was attached to discharge line of Keck pump for dissolved metals sample.
- Pull Keck pump out of well and lower disposable bailer down well and collect VOC sample.
- All samples were preserved in the field.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: 25JAN93
See back

SAMPLE LOCATION MW014 LAB NUMBER ____

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ~~6.51~~ FT KLM
[ ] TOP OF WELL
[X] TOP OF CASING
[ ] ____

WELL DIAM.
[ ] 2 INCH
[X] 4 INCH
[ ] 6 INCH
[ ] ____

WATER DEPTH 6.51 FT Below TOC on 1-25-93
DRAEGER AMBIENT 0.0 ppm
WELL MOUTH 0.0 ppm

MONITORING: FID:
AMBIENT AIR 0.0 PPM
WELL MOUTH 0.0 PPM

HISTORICAL WELL DEPTH 33.86 FT
[ ] TOP OF WELL
[ ] TOP OF CASING
[ ] ____

WELL MATERIAL:
[X] PVC
[ ] SS
[ ] ____

PROTECTIVE CASING STICK-UP (FROM GROUND) ____ FT

Purge water and ambient air was monitored with OVA(FID) and Draeger tubes. No readings were detected from either instrument during the sampling event

PURGE DATA

HEIGHT OF WATER COLUMN 27.35 FT on 1-25-93

Total Purge Volume = [Bottom Depth 33.86 − Static Water Level (A)] x 0.65 gal/ft +

[Area of Borehole − Area of MW] x Sandpack (ft) 26.5 x Sandpack Porosity (0.30) x 7.48 gal/ft³ = ____ TOTAL PURGE VOLUME (GAL.)

PURGE TIME 1-25-93 START 1600 END 1637

SAMPLE TIME 1-27-93 START ~~0~~1005 END 1055

	1-25-93		1-27-93		
PURGE VOLUME	@ 9 GAL	@ 21 GAL	@ 55 GAL	@ 65 GAL	@ 85 GAL
TEMP, DEG C	10.2	11.3	11.2	11.2	11.3
pH, UNITS	7.55	7.48	7.66	7.59	7.58
SPECIFIC CONDUCTIVITY, umhos/cm	1509	1488	2100	1987	1895
	Water clear	Water clear			

Well dry 1-27-93

TPV = (33.86 − A).65 + 15.63 = 33.41 ~~x 5~~ KLM

Purge 53 gal. on 1-25-93 Well dry

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP (Keck)	
DISP.	[X] BAILER (PVC/SS/TEFLON) (VOCs)	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ____	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[X] NONE (DISPOSABLE BAILER)
[X] ASTM Type II Water

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED ____

~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

SAMPLES COLLECTED

Note: Keck pump was deconned by pumping 5-gall. of TYPE II WATER through pump and lines. Pump was rinsed on the outside with type II water as well.

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW1*14VP	VOC	UM20	2x40ml	A. GLASS	NO	HCl <2
DAW1*14-MS	SVOC	UM18	2x1L	A. GLASS	NO	—
DAW1*14-EC	PEST./PCB	UH13/UH02	2x1L	A. GLASS	NO	—
DAW1*14NF	DIS. METALS	SS10/SDXX/SD01	1L	POLY.	YES	HNO_3 <2
DAW1*14-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW1*14-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW1*14-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW1*140	OIL+GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
1*140	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

Sample slightly turbid when sampled.

SIGNATURE K[illegible] Mish + Tom Winebrenner

SIGNATURE/FUNCTION: See backside

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

Notes

MW-14

1-27-93

- WL = 7.42 below TOC

- Start purging 09:40 hrs.
- purge rate 1.33 gal/min.

sample 10:05 Start, done at 1055

NOTES Added in office

1) Initial water level was collected on 1-25-93. Water level was 6.51' Below TOC
- Well was secure on arrival.
- No readings above background were detected with the OVA
- No readings were ~~detected~~ detected with the Drager tube
- 53 gallons were purged on 1-25-93, The well went dry at 53 gallons.
~~No read~~ The purge water was monitored with both the OVA and the Drager tube - No readings were detected.

2) 1-26-93
- Collected water level reading = 15.82' Below TOC (Top of Casing)
- A groundwater sample was not collected because the well did not recover

3) 1-27-93
- Collect water level reading = 7.42' Below TOC
- Purged well from 0940 to 1005 ≈ 23 min. at 1.33 gal/min ≈ 31 gallons.
- Collected groundwater sample at 1005 to 1055.

4) Total Purge Volume: 53 gal + 31 gal. = 84 gallons.
5) Sampling Procedure: well was purged with Keck pump. All samples were collected with Keck pump except for VOCs. VOCs were collected with a disposable bailer after collecting all other samples with Keck pump.

RBLK-1

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: JAN93

SAMPLE LOCATION ~~MW~~ RBLK-1 LAB NUMBER ______

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ______ FT
[ ] TOP OF WELL
[X] TOP OF CASING
[ ] ______

WELL DIAM.
[ ] 2 INCH
[X] 4 INCH
[ ] 6 INCH
[ ] ______

WATER DEPTH ______ FT
DRAEGER AMBIENT Ø ppm
WELL MOUTH Ø ppm

MONITORING: FID:
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH ______ FT
[ ] TOP OF WELL
[ ] TOP OF CASING
[ ] ______

WELL MATERIAL:
[X] PVC
[ ] SS
[ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

Total Purge Volume = (Bottom Depth − Static Water Level) x 0.65 gal/ft +

HEIGHT OF WATER COLUMN ______ FT

(Area of Borehole − Area of MW) x Sandpack (ft) x Sandpack Porosity (0.30) x 7.48 gal/ft.^{3} = ______ TOTAL PURGE VOLUME (GAL.)

PURGE TIME START ______ END ______

SAMPLE TIME START 1645 END ______

PURGE VOLUME	a ___ GAL	a ___ GAL	a ___ GAL	a ___ GAL	a ___ GAL
TEMP, DEG C					
pH, UNITS					
SPECIFIC CONDUCTIVITY, umhos/cm					

TPV=

EQUIPMENT DOCUMENTATION

Note: sample was collected from Keck pump discharge line and from a disposable bailer for the VOC samples

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP Keck	
[ ] DISP.	[X] BAILER (PVC/SS/TEFLON)	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[X] NONE (DISPOSABLE BAILER)
[X] ASTM Type II Water
~~BAILER RINSED THREE TIMES WITH ASTM TYPE II WATER PRIOR TO PURGING WELL.~~ KLM

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER (SOLINST)

NUMBER OF FILTER PAPERS USED ______

SAMPLES COLLECTED SAMPLE TIME 1645

– Keck pump deconed by pumping ASTM type II water through pump and tubing prior to collecting sample

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAWI* VP	VOC – collected with disp. bailer	UM20	2x40ml	A. GLASS	NO	HCl <2
DAWI* -MS	SVOC	UM18	2x1L	A. GLASS	NO	—
DAWI* -EC	PEST./PCB	UH13/UH02	2x1L	A. GLASS	NO	—
DAWI* NF	*DIS. METALS	SS10/SDXX/SB01	1L	POLY.	YES	HNO_3 <2
DAWI* -S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAWI* -C	SULFATE	TT10	1L	PLASTIC	NO	—
DAWI* -B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAWI* O	OIL+GREASE	EPA 413.2	1L	W.M. AMBER	NO	H_2SO_4 <2
...WI* -O	T.R.P.H.	EPA 418.1	1L	W.M. AMBER	NO	H_2SO_4 <2

*

* Dissolved Metals sample was field filtered with in-line filter

SIGNATURE Kelly [illegible] / Geologist

SIGNATURE/FUNCTION: Tom Winebrenner

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL JOB NO. 7027-03 DATE: 25 JAN 93

.PLE LOCATION DAW1* TBLK1 LAB NUMBER ______

WATER LEVEL/WELL DATA

~~MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______ WELL DIAM. [ ] 2 INCH [ ] 4 INCH [ ] 6 INCH [ ] ______ WATER DEPTH ______ FT MONITORING: AMBIENT AIR ______ PPM WELL MOUTH ______ PPM~~

~~HISTORICAL WELL DEPTH ______ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______ WELL MATERIAL: [ ] PVC [ ] SS [ ] ______ PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT~~

PURGE DATA

HEIGHT OF WATER COLUMN ______ FT [ ] .16 GAL/FT (2 IN) [ ] .65 GAL/FT (4 IN) [ ] 1.5 GAL/FT (6 IN) [ ] ____ GAL/FT (____ IN) X ____ CASING VOLUMES = GALLONS TO BE PURGED

PURGE TIME START ______ END ______

SAMPLE TIME START 10:00 END ______

PURGE VOLUME	@ ____ GAL	@ ____ GAL	@ ____ GAL	@ ____ GAL	@ ____ GAL
TEMP, DEG C					
pH, UNITS					
SPECIFIC CONDUCTIVITY, umhos/cm					

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[ ]	[ ] SUBMERSIBLE PUMP	
[ ]	[ ] BAILER (PVC/SS/TEFLON)	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[ ] IN-LINE FILTER	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
- [ ] ETHYL ALCOHOL
- [ ] DEIONIZED WATER
- [ ] HNO3/D.I. WATER
- [ ] POTABLE WATER
- [ ] TSP SOLUTION
- [ ] NONE
- [ ] ______

WATER LEVEL EQUIP.USED
- [ ] ELECTRIC COND. PROBE
- [ ] FLOAT ACTIVATED
- [ ] KECK INTERFACE PROBE
- [ ] OTHER

NUMBER OF FILTER PAPERS USED ____

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/ VOLUME
DAW1*TBLK1	VOC	UM-20	40ml	AMBER	NO	HCl pH<2

NOTES Trip blank filled with ASTM type II water in ABB's 'oz lab prior to leaving for field.

SIGNATURE [signature]

SIGNATURE/FUNCTION: ______

ABB ENVIRONMENTAL SERVICES, INC.

ROUND 1 ANALYTICAL DATA

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
WELL	MW001	00	OILGR	28-jan-1993	ES	3.1	184	UGL	LT		GO
			TPHC	28-jan-1993	ES	3.1	184	UGL	LT		GO
WELL	MW001	SB01	HG	28-jan-1993	ES	3.1	0.243	UGL	LT		GO
WELL	MW001	SD09	TL	28-jan-1993	ES	3.1	6.99	UGL	LT		GO
WELL	MW001	SD20	PB	28-jan-1993	ES	3.1	1.26	UGL	LT		GO
WELL	MW001	SD21	SE	28-jan-1993	ES	3.1	3.02	UGL	LT		GO
WELL	MW001	SD22	AS	28-jan-1993	ES	3.1	3.2	UGL			GO
WELL	MW001	SS10	AG	28-jan-1993	ES	3.1	4.6	UGL	LT		GO
			AL	28-jan-1993	ES	3.1	141	UGL	LT		GO
			BA	28-jan-1993	ES	3.1	128	UGL			GO
			BE	28-jan-1993	ES	3.1	5	UGL	LT		GO
			CA	28-jan-1993	ES	3.1	341000	UGL			GO
			CD	28-jan-1993	ES	3.1	4.01	UGL	LT		GO
			CO	28-jan-1993	ES	3.1	25	UGL	LT		GO
			CR	28-jan-1993	ES	3.1	6.02	UGL	LT		GO
			CU	28-jan-1993	ES	3.1	8.09	UGL	LT		GO
			FE	28-jan-1993	ES	3.1	2580	UGL			GO
			K	28-jan-1993	ES	3.1	3200	UGL			GO
			MG	28-jan-1993	ES	3.1	127000	UGL			GO
			MN	28-jan-1993	ES	3.1	1300	UGL			GO
			NA	28-jan-1993	ES	3.1	126000	UGL			GO
			NI	28-jan-1993	ES	3.1	34.3	UGL	LT		GO
			SB	28-jan-1993	ES	3.1	38	UGL	LT		GO
			V	28-jan-1993	ES	3.1	18.8	UGL			GO
			ZN	28-jan-1993	ES	3.1	98.6	UGL			GO
WELL	MW001	TF18	CYN	28-jan-1993	ES	3.1	2.5	UGL	LT		GO
WELL	MW001	TF22	NIT	28-jan-1993	ES	3.1	33.6	UGL			GO
WELL	MW001	TT10	CL	28-jan-1993	ES	3.1	300000	UGL			GO
			SO4	28-jan-1993	ES	3.1	400000	UGL			GO
WELL	MW001	UH02	PCB016	28-jan-1993	ES	3.1	0.16	UGL	LT		GO
			PCB221	28-jan-1993	ES	3.1	0.16	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	3.1	0.16	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	3.1	0.19	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	3.1	0.19	UGL	ND	R	GO
			PCB254	28-jan-1993	ES	3.1	0.19	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	3.1	0.19	UGL	LT		GO
WELL	MW001	UH13	ABHC	28-jan-1993	ES	3.1	0.0385	UGL	LT		GO
WELL	MW001	UH13	ACLDAN	28-jan-1993	ES	3.1	0.075	UGL	ND	R	GO
			AENSLF	28-jan-1993	ES	3.1	0.023	UGL	LT		GO
			ALDRN	28-jan-1993	ES	3.1	0.0918	UGL	LT		GO
			BBHC	28-jan-1993	ES	3.1	0.024	UGL	LT		GO
			BENSLF	28-jan-1993	ES	3.1	0.023	UGL	LT		GO
			DBHC	28-jan-1993	ES	3.1	0.0293	UGL	LT		GO
			DLDRN	28-jan-1993	ES	3.1	0.024	UGL	LT		GO
			ENDRN	28-jan-1993	ES	3.1	0.0238	UGL	LT		GO
			ENDRNA	28-jan-1993	ES	3.1	0.0285	UGL	LT		GO
			ENDRNK	28-jan-1993	ES	3.1	0.0285	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	3.1	0.0786	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	3.1	0.075	UGL	ND	R	GO
			HPCL	28-jan-1993	ES	3.1	0.0423	UGL	LT		GO
			HPCLE	28-jan-1993	ES	3.1	0.0245	UGL	LT		GO
			ISODR	28-jan-1993	ES	3.1	0.0562	UGL	LT		GO
			LIN	28-jan-1993	ES	3.1	0.0507	UGL	LT		GO
			MEXCLR	28-jan-1993	ES	3.1	0.057	UGL	LT		GO
			PPDDD	28-jan-1993	ES	3.1	0.0233	UGL	LT		GO
			PPDDE	28-jan-1993	ES	3.1	0.027	UGL	LT		GO
			PPDDT	28-jan-1993	ES	3.1	0.034	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			TXPHEN	28-jan-1993	ES	3.1	1.35	UGL	LT		GO
WELL	MW001	UM18	124TCB	28-jan-1993	ES	3.1	1.8	UGL	LT		GO
			12DCLB	28-jan-1993	ES	3.1	1.7	UGL	LT		GO
			12DPH	28-jan-1993	ES	3.1	2	UGL	ND	R	GO
			13DCLB	28-jan-1993	ES	3.1	1.7	UGL	LT		GO
			14DCLB	28-jan-1993	ES	3.1	1.7	UGL	LT		GO
			245TCP	28-jan-1993	ES	3.1	5.2	UGL	LT		GO
			246TCP	28-jan-1993	ES	3.1	4.2	UGL	LT		GO
			24DCLP	28-jan-1993	ES	3.1	2.9	UGL	LT		GO
			24DMPN	28-jan-1993	ES	3.1	5.8	UGL	LT		GO
			24DNP	28-jan-1993	ES	3.1	21	UGL	LT		GO
			24DNT	28-jan-1993	ES	3.1	4.5	UGL	LT		GO
			26DNT	28-jan-1993	ES	3.1	0.79	UGL	LT		GO
			2CLP	28-jan-1993	ES	3.1	0.99	UGL	LT		GO
			2CNAP	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			2MNAP	28-jan-1993	ES	3.1	1.7	UGL	LT		GO
			2MP	28-jan-1993	ES	3.1	3.9	UGL	LT		GO
			2NANIL	28-jan-1993	ES	3.1	4.3	UGL	LT		GO
			2NP	28-jan-1993	ES	3.1	3.7	UGL	LT		GO
			33DCBD	28-jan-1993	ES	3.1	12	UGL	LT		GO
			3NANIL	28-jan-1993	ES	3.1	4.9	UGL	LT		GO
			46DN2C	28-jan-1993	ES	3.1	17	UGL	LT		GO
			4BRPPE	28-jan-1993	ES	3.1	4.2	UGL	LT		GO
			4CANIL	28-jan-1993	ES	3.1	7.3	UGL	LT		GO
			4CL3C	28-jan-1993	ES	3.1	4	UGL	LT		GO
			4CLPPE	28-jan-1993	ES	3.1	5.1	UGL	LT		GO
			4MP	28-jan-1993	ES	3.1	0.52	UGL	LT		GO
			4NANIL	28-jan-1993	ES	3.1	5.2	UGL	LT		GO
			4NP	28-jan-1993	ES	3.1	12	UGL	LT		GO
			ABHC	28-jan-1993	ES	3.1	4	UGL	ND	R	GO
			ACLDAN	28-jan-1993	ES	3.1	5.1	UGL	ND	R	GO
WELL	MW001	UM18	AENSLF	28-jan-1993	ES	3.1	9.2	UGL	ND	R	GO
			ALDRN	28-jan-1993	ES	3.1	4.7	UGL	ND	R	GO
			ANAPNE	28-jan-1993	ES	3.1	1.7	UGL	LT		GO
			ANAPYL	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			ANTRC	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			B2CEXM	28-jan-1993	ES	3.1	1.5	UGL	LT		GO
			B2CIPE	28-jan-1993	ES	3.1	5.3	UGL	LT		GO
			B2CLEE	28-jan-1993	ES	3.1	1.9	UGL	LT		GO
			B2EHP	28-jan-1993	ES	3.1	6.4	UGL			GO
			BAANTR	28-jan-1993	ES	3.1	1.6	UGL	LT		GO
			BAPYR	28-jan-1993	ES	3.1	4.7	UGL	LT		GO
			BBFANT	28-jan-1993	ES	3.1	5.4	UGL	LT		GO
			BBHC	28-jan-1993	ES	3.1	4	UGL	ND	R	GO
			BBZP	28-jan-1993	ES	3.1	3.4	UGL	LT		GO
			BENSLF	28-jan-1993	ES	3.1	9.2	UGL	ND	R	GO
			BENZID	28-jan-1993	ES	3.1	10	UGL	ND	R	GO
			BENZOA	28-jan-1993	ES	3.1	13	UGL	LT		GO
			BGHIPY	28-jan-1993	ES	3.1	6.1	UGL	LT		GO
			BKFANT	28-jan-1993	ES	3.1	0.87	UGL	LT		GO
			BZALC	28-jan-1993	ES	3.1	0.72	UGL	LT		GO
			CARBAZ	28-jan-1993	ES	3.1	1.5	UGL	ND	R	GO
			CHRY	28-jan-1993	ES	3.1	2.4	UGL	LT		GO
			CL6BZ	28-jan-1993	ES	3.1	1.6	UGL	LT		GO
			CL6CP	28-jan-1993	ES	3.1	8.6	UGL	LT		GO
			CL6ET	28-jan-1993	ES	3.1	1.5	UGL	LT		GO
			DBAHA	28-jan-1993	ES	3.1	6.5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			DBHC	28-jan-1993	ES	3.1	4	UGL	ND	R	GO
			DBZFUR	28-jan-1993	ES	3.1	1.7	UGL	LT		GO
			DEP	28-jan-1993	ES	3.1	2	UGL	LT		GO
			DLDRN	28-jan-1993	ES	3.1	4.7	UGL	ND	R	GO
			DMP	28-jan-1993	ES	3.1	1.5	UGL	LT		GO
			DNBP	28-jan-1993	ES	3.1	3.7	UGL	LT		GO
			DNOP	28-jan-1993	ES	3.1	15	UGL	LT		GO
			ENDRN	28-jan-1993	ES	3.1	7.6	UGL	ND	R	GO
			ENDRNA	28-jan-1993	ES	3.1	8	UGL	ND	R	GO
			ENDRNK	28-jan-1993	ES	3.1	8	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	3.1	9.2	UGL	ND	R	GO
			FANT	28-jan-1993	ES	3.1	3.3	UGL	LT		GO
			FLRENE	28-jan-1993	ES	3.1	3.7	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	3.1	5.1	UGL	ND	R	GO
			HCBD	28-jan-1993	ES	3.1	3.4	UGL	LT		GO
			HPCL	28-jan-1993	ES	3.1	2	UGL	ND	R	GO
			HPCLE	28-jan-1993	ES	3.1	5	UGL	ND	R	GO
			ICDPYR	28-jan-1993	ES	3.1	8.6	UGL	LT		GO
			ISOPHR	28-jan-1993	ES	3.1	4.8	UGL	LT		GO
			LIN	28-jan-1993	ES	3.1	4	UGL	ND	R	GO
			MEXCLR	28-jan-1993	ES	3.1	5.1	UGL	ND	R	GO
			NAP	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			NB	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			NNDMEA	28-jan-1993	ES	3.1	2	UGL	ND	R	GO
			NNDNPA	28-jan-1993	ES	3.1	4.4	UGL	LT		GO
			NNDPA	28-jan-1993	ES	3.1	3	UGL	LT		GO
WELL	MW001	UM18	PCB016	28-jan-1993	ES	3.1	21	UGL	ND	R	GO
			PCB221	28-jan-1993	ES	3.1	21	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	3.1	21	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	3.1	30	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	3.1	30	UGL	ND	R	GO
			PCB254	28-jan-1993	ES	3.1	36	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	3.1	36	UGL	ND	R	GO
			PCP	28-jan-1993	ES	3.1	18	UGL	LT		GO
			PHANTR	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			PHENOL	28-jan-1993	ES	3.1	9.2	UGL	LT		GO
			PPDDD	28-jan-1993	ES	3.1	4	UGL	ND	R	GO
			PPDDE	28-jan-1993	ES	3.1	4.7	UGL	ND	R	GO
			PPDDT	28-jan-1993	ES	3.1	9.2	UGL	ND	R	GO
			PYR	28-jan-1993	ES	3.1	2.8	UGL	LT		GO
			TXPHEN	28-jan-1993	ES	3.1	36	UGL	ND	R	GO
WELL	MW001	UM20	111TCE	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			112TCE	28-jan-1993	ES	3.1	1.2	UGL	LT		GO
			11DCE	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			11DCLE	28-jan-1993	ES	3.1	0.68	UGL	LT		GO
			12DCE	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			12DCLE	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			12DCLP	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			2CLEVE	28-jan-1993	ES	3.1	0.71	UGL	LT		GO
			ACET	28-jan-1993	ES	3.1	13	UGL	LT		GO
			ACROLN	28-jan-1993	ES	3.1	100	UGL	ND	R	GO
			ACRYLO	28-jan-1993	ES	3.1	100	UGL	ND	R	GO
			BRDCLM	28-jan-1993	ES	3.1	0.59	UGL	LT		GO
			C13DCP	28-jan-1993	ES	3.1	0.58	UGL	LT		GO
			C2AVE	28-jan-1993	ES	3.1	8.3	UGL	LT		GO
			C2H3CL	28-jan-1993	ES	3.1	2.6	UGL	LT		GO
			C2H5CL	28-jan-1993	ES	3.1	1.9	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			C6H6	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			CCL3F	28-jan-1993	ES	3.1	1.4	UGL	LT		GO
			CCL4	28-jan-1993	ES	3.1	0.58	UGL	LT		GO
			CH2CL2	28-jan-1993	ES	3.1	2.3	UGL	LT		GO
			CH3BR	28-jan-1993	ES	3.1	5.8	UGL	LT		GO
			CH3CL	28-jan-1993	ES	3.1	3.2	UGL	LT		GO
			CHBR3	28-jan-1993	ES	3.1	2.6	UGL	LT		GO
			CHCL3	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			CL2BZ	28-jan-1993	ES	3.1	10	UGL	ND	R	GO
			CLC6H5	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			CS2	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			DBRCLM	28-jan-1993	ES	3.1	0.67	UGL	LT		GO
			ETC6H5	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			MEC6H5	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			MEK	28-jan-1993	ES	3.1	6.4	UGL	LT		GO
			MIBK	28-jan-1993	ES	3.1	3	UGL	LT		GO
			MNBK	28-jan-1993	ES	3.1	3.6	UGL	LT		GO
			STYR	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			T13DCP	28-jan-1993	ES	3.1	0.7	UGL	LT		GO
			TCLEA	28-jan-1993	ES	3.1	0.51	UGL	LT		GO
WELL	MW001	UM20	TCLEE	28-jan-1993	ES	3.1	1.6	UGL	LT		GO
			TRCLE	28-jan-1993	ES	3.1	0.5	UGL	LT		GO
			XYLEN	28-jan-1993	ES	3.1	0.84	UGL	LT		GO
WELL	MW002	00	OILGR	28-jan-1993	ES	3.5	355	UGL			GO
			TPHC	28-jan-1993	ES	3.5	181	UGL	LT		GO
WELL	MW002	SB01	HG	28-jan-1993	ES	3.5	0.243	UGL	LT		GO
WELL	MW002	SD09	TL	28-jan-1993	ES	3.5	6.99	UGL	LT		GO
WELL	MW002	SD20	PB	28-jan-1993	ES	3.5	1.26	UGL	LT		GO
WELL	MW002	SD21	SE	28-jan-1993	ES	3.5	3.02	UGL	LT		GO
WELL	MW002	SD22	AS	28-jan-1993	ES	3.5	2.54	UGL	LT		GO
WELL	MW002	SS10	AG	28-jan-1993	ES	3.5	4.6	UGL	LT		GO
			AL	28-jan-1993	ES	3.5	141	UGL	LT		GO
			BA	28-jan-1993	ES	3.5	48.1	UGL			GO
			BE	28-jan-1993	ES	3.5	5	UGL	LT		GO
			CA	28-jan-1993	ES	3.5	241000	UGL			GO
			CD	28-jan-1993	ES	3.5	4.01	UGL	LT		GO
			CO	28-jan-1993	ES	3.5	25	UGL	LT		GO
			CR	28-jan-1993	ES	3.5	6.02	UGL	LT		GO
			CU	28-jan-1993	ES	3.5	8.09	UGL	LT		GO
			FE	28-jan-1993	ES	3.5	38.8	UGL	LT		GO
			K	28-jan-1993	ES	3.5	9650	UGL			GO
			MG	28-jan-1993	ES	3.5	70200	UGL			GO
			MN	28-jan-1993	ES	3.5	104	UGL			GO
			NA	28-jan-1993	ES	3.5	55300	UGL			GO
			NI	28-jan-1993	ES	3.5	34.3	UGL	LT		GO
			SB	28-jan-1993	ES	3.5	38	UGL	LT		GO
			V	28-jan-1993	ES	3.5	14.3	UGL			GO
			ZN	28-jan-1993	ES	3.5	21.1	UGL	LT		GO
WELL	MW002	TF18	CYN	28-jan-1993	ES	3.5	2.5	UGL	LT		GO
WELL	MW002	TF22	NIT	28-jan-1993	ES	3.5	24.8	UGL			GO
WELL	MW002	TT10	CL	28-jan-1993	ES	3.5	60000	UGL			GO
			SO4	28-jan-1993	ES	3.5	350000	UGL			GO
WELL	MW002	UH02	PCB016	28-jan-1993	ES	3.5	0.16	UGL	LT		GO
			PCB221	28-jan-1993	ES	3.5	0.16	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	3.5	0.16	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	3.5	0.19	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	3.5	0.19	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			PCB254	28-jan-1993	ES	3.5	0.19	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	3.5	0.19	UGL	LT		GO
WELL	MW002	UH13	ABHC	28-jan-1993	ES	3.5	0.0385	UGL	LT		GO
WELL	MW002	UH13	ACLDAN	28-jan-1993	ES	3.5	0.075	UGL	ND	R	GO
			AENSLF	28-jan-1993	ES	3.5	0.023	UGL	LT		GO
			ALDRN	28-jan-1993	ES	3.5	0.0918	UGL	LT		GO
			BBHC	28-jan-1993	ES	3.5	0.024	UGL	LT		GO
			BENSLF	28-jan-1993	ES	3.5	0.023	UGL	LT		GO
			DBHC	28-jan-1993	ES	3.5	0.0293	UGL	LT		GO
			DLDRN	28-jan-1993	ES	3.5	0.024	UGL	LT		GO
			ENDRN	28-jan-1993	ES	3.5	0.0238	UGL	LT		GO
			ENDRNA	28-jan-1993	ES	3.5	0.0285	UGL	LT		GO
			ENDRNK	28-jan-1993	ES	3.5	0.0285	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	3.5	0.0786	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	3.5	0.075	UGL	ND	R	GO
			HPCL	28-jan-1993	ES	3.5	0.0423	UGL	LT		GO
			HPCLE	28-jan-1993	ES	3.5	0.0245	UGL	LT		GO
			ISODR	28-jan-1993	ES	3.5	0.0562	UGL	LT		GO
			LIN	28-jan-1993	ES	3.5	0.0507	UGL	LT		GO
			MEXCLR	28-jan-1993	ES	3.5	0.057	UGL	LT		GO
			PPDDD	28-jan-1993	ES	3.5	0.0233	UGL	LT		GO
			PPDDE	28-jan-1993	ES	3.5	0.027	UGL	LT		GO
			PPDDT	28-jan-1993	ES	3.5	0.034	UGL	LT		GO
			TXPHEN	28-jan-1993	ES	3.5	1.35	UGL	LT		GO
WELL	MW002	UM18	124TCB	28-jan-1993	ES	3.5	1.8	UGL	LT		GO
			12DCLB	28-jan-1993	ES	3.5	1.7	UGL	LT		GO
			12DPH	28-jan-1993	ES	3.5	2	UGL	ND	R	GO
			13DCLB	28-jan-1993	ES	3.5	1.7	UGL	LT		GO
			14DCLB	28-jan-1993	ES	3.5	1.7	UGL	LT		GO
			245TCP	28-jan-1993	ES	3.5	5.2	UGL	LT		GO
			246TCP	28-jan-1993	ES	3.5	4.2	UGL	LT		GO
			24DCLP	28-jan-1993	ES	3.5	2.9	UGL	LT		GO
			24DMPN	28-jan-1993	ES	3.5	5.8	UGL	LT		GO
			24DNP	28-jan-1993	ES	3.5	21	UGL	LT		GO
			24DNT	28-jan-1993	ES	3.5	4.5	UGL	LT		GO
			26DNT	28-jan-1993	ES	3.5	0.79	UGL	LT		GO
			2CLP	28-jan-1993	ES	3.5	0.99	UGL	LT		GO
			2CNAP	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			2MNAP	28-jan-1993	ES	3.5	1.7	UGL	LT		GO
			2MP	28-jan-1993	ES	3.5	3.9	UGL	LT		GO
			2NANIL	28-jan-1993	ES	3.5	4.3	UGL	LT		GO
			2NP	28-jan-1993	ES	3.5	3.7	UGL	LT		GO
			33DCBD	28-jan-1993	ES	3.5	12	UGL	LT		GO
			3NANIL	28-jan-1993	ES	3.5	4.9	UGL	LT		GO
			46DN2C	28-jan-1993	ES	3.5	17	UGL	LT		GO
			4BRPPE	28-jan-1993	ES	3.5	4.2	UGL	LT		GO
			4CANIL	28-jan-1993	ES	3.5	7.3	UGL	LT		GO
			4CL3C	28-jan-1993	ES	3.5	4	UGL	LT		GO
			4CLPPE	28-jan-1993	ES	3.5	5.1	UGL	LT		GO
			4MP	28-jan-1993	ES	3.5	0.52	UGL	LT		GO
			4NANIL	28-jan-1993	ES	3.5	5.2	UGL	LT		GO
			4NP	28-jan-1993	ES	3.5	12	UGL	LT		GO
			ABHC	28-jan-1993	ES	3.5	4	UGL	ND	R	GO
			ACLDAN	28-jan-1993	ES	3.5	5.1	UGL	ND	R	GO
WELL	MW002	UM18	AENSLF	28-jan-1993	ES	3.5	9.2	UGL	ND	R	GO
			ALDRN	28-jan-1993	ES	3.5	4.7	UGL	ND	R	GO
			ANAPNE	28-jan-1993	ES	3.5	1.7	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			ANAPYL	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			ANTRC	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			B2CEXM	28-jan-1993	ES	3.5	1.5	UGL	LT		GO
			B2CIPE	28-jan-1993	ES	3.5	5.3	UGL	LT		GO
			B2CLEE	28-jan-1993	ES	3.5	1.9	UGL	LT		GO
			B2EHP	28-jan-1993	ES	3.5	4.8	UGL	LT		GO
			BAANTR	28-jan-1993	ES	3.5	1.6	UGL	LT		GO
			BAPYR	28-jan-1993	ES	3.5	4.7	UGL	LT		GO
			BBFANT	28-jan-1993	ES	3.5	5.4	UGL	LT		GO
			BBHC	28-jan-1993	ES	3.5	4	UGL	ND	R	GO
			BBZP	28-jan-1993	ES	3.5	3.4	UGL	LT		GO
			BENSLF	28-jan-1993	ES	3.5	9.2	UGL	ND	R	GO
			BENZID	28-jan-1993	ES	3.5	10	UGL	ND	R	GO
			BENZOA	28-jan-1993	ES	3.5	13	UGL	LT		GO
			BGHIPY	28-jan-1993	ES	3.5	6.1	UGL	LT		GO
			BKFANT	28-jan-1993	ES	3.5	0.87	UGL	LT		GO
			BZALC	28-jan-1993	ES	3.5	0.72	UGL	LT		GO
			CARBAZ	28-jan-1993	ES	3.5	1.5	UGL	ND	R	GO
			CHRY	28-jan-1993	ES	3.5	2.4	UGL	LT		GO
			CL6BZ	28-jan-1993	ES	3.5	1.6	UGL	LT		GO
			CL6CP	28-jan-1993	ES	3.5	8.6	UGL	LT		GO
			CL6ET	28-jan-1993	ES	3.5	1.5	UGL	LT		GO
			DBAHA	28-jan-1993	ES	3.5	6.5	UGL	LT		GO
			DBHC	28-jan-1993	ES	3.5	4	UGL	ND	R	GO
			DBZFUR	28-jan-1993	ES	3.5	1.7	UGL	LT		GO
			DEP	28-jan-1993	ES	3.5	2	UGL	LT		GO
			DLDRN	28-jan-1993	ES	3.5	4.7	UGL	ND	R	GO
			DMP	28-jan-1993	ES	3.5	1.5	UGL	LT		GO
			DNBP	28-jan-1993	ES	3.5	3.7	UGL	LT		GO
			DNOP	28-jan-1993	ES	3.5	15	UGL	LT		GO
			ENDRN	28-jan-1993	ES	3.5	7.6	UGL	ND	R	GO
			ENDRNA	28-jan-1993	ES	3.5	8	UGL	ND	R	GO
			ENDRNK	28-jan-1993	ES	3.5	8	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	3.5	9.2	UGL	ND	R	GO
			FANT	28-jan-1993	ES	3.5	3.3	UGL	LT		GO
			FLRENE	28-jan-1993	ES	3.5	3.7	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	3.5	5.1	UGL	ND	R	GO
			HCBD	28-jan-1993	ES	3.5	3.4	UGL	LT		GO
			HPCL	28-jan-1993	ES	3.5	2	UGL	ND	R	GO
			HPCLE	28-jan-1993	ES	3.5	5	UGL	ND	R	GO
			ICDPYR	28-jan-1993	ES	3.5	8.6	UGL	LT		GO
			ISOPHR	28-jan-1993	ES	3.5	4.8	UGL	LT		GO
			LIN	28-jan-1993	ES	3.5	4	UGL	ND	R	GO
			MEXCLR	28-jan-1993	ES	3.5	5.1	UGL	ND	R	GO
			NAP	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			NB	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			NNDMEA	28-jan-1993	ES	3.5	2	UGL	ND	R	GO
			NNDNPA	28-jan-1993	ES	3.5	4.4	UGL	LT		GO
			NNDPA	28-jan-1993	ES	3.5	3	UGL	LT		GO
WELL	MW002	UM18	PCB016	28-jan-1993	ES	3.5	21	UGL	ND	R	GO
			PCB221	28-jan-1993	ES	3.5	21	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	3.5	21	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	3.5	30	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	3.5	30	UGL	ND	R	GO
			PCB254	28-jan-1993	ES	3.5	36	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	3.5	36	UGL	ND	R	GO
			PCP	28-jan-1993	ES	3.5	18	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			PHANTR	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			PHENOL	28-jan-1993	ES	3.5	9.2	UGL	LT		GO
			PPDDD	28-jan-1993	ES	3.5	4	UGL	ND	R	GO
			PPDDE	28-jan-1993	ES	3.5	4.7	UGL	ND	R	GO
			PPDDT	28-jan-1993	ES	3.5	9.2	UGL	ND	R	GO
			PYR	28-jan-1993	ES	3.5	2.8	UGL	LT		GO
			TXPHEN	28-jan-1993	ES	3.5	36	UGL	ND	R	GO
WELL	MW002	UM20	111TCE	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			112TCE	28-jan-1993	ES	3.5	1.2	UGL	LT		GO
			11DCE	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			11DCLE	28-jan-1993	ES	3.5	0.68	UGL	LT		GO
			12DCE	28-jan-1993	ES	3.5	7	UGL			GO
			12DCLE	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			12DCLP	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			2CLEVE	28-jan-1993	ES	3.5	0.71	UGL	LT		GO
			ACET	28-jan-1993	ES	3.5	13	UGL	LT		GO
			ACROLN	28-jan-1993	ES	3.5	100	UGL	ND	R	GO
			ACRYLO	28-jan-1993	ES	3.5	100	UGL	ND	R	GO
			BRDCLM	28-jan-1993	ES	3.5	0.59	UGL	LT		GO
			C13DCP	28-jan-1993	ES	3.5	0.58	UGL	LT		GO
			C2AVE	28-jan-1993	ES	3.5	8.3	UGL	LT		GO
			C2H3CL	28-jan-1993	ES	3.5	2.6	UGL	LT		GO
			C2H5CL	28-jan-1993	ES	3.5	1.9	UGL	LT		GO
			C6H6	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			CCL3F	28-jan-1993	ES	3.5	1.4	UGL	LT		GO
			CCL4	28-jan-1993	ES	3.5	0.58	UGL	LT		GO
			CH2CL2	28-jan-1993	ES	3.5	2.3	UGL	LT		GO
			CH3BR	28-jan-1993	ES	3.5	5.8	UGL	LT		GO
			CH3CL	28-jan-1993	ES	3.5	3.2	UGL	LT		GO
			CHBR3	28-jan-1993	ES	3.5	2.6	UGL	LT		GO
			CHCL3	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			CL2BZ	28-jan-1993	ES	3.5	10	UGL	ND	R	GO
			CLC6H5	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			CS2	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			DBRCLM	28-jan-1993	ES	3.5	0.67	UGL	LT		GO
			ETC6H5	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			MEC6H5	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			MEK	28-jan-1993	ES	3.5	6.4	UGL	LT		GO
			MIBK	28-jan-1993	ES	3.5	3	UGL	LT		GO
			MNBK	28-jan-1993	ES	3.5	3.6	UGL	LT		GO
			STYR	28-jan-1993	ES	3.5	0.5	UGL	LT		GO
			T13DCP	28-jan-1993	ES	3.5	0.7	UGL	LT		GO
			TCLEA	28-jan-1993	ES	3.5	0.51	UGL	LT		GO
WELL	MW002	UM20	TCLEE	28-jan-1993	ES	3.5	1.6	UGL	LT		GO
			TRCLE	28-jan-1993	ES	3.5	1.7	UGL			GO
			XYLEN	28-jan-1993	ES	3.5	0.84	UGL	LT		GO
WELL	MW004	00	OILGR	28-jan-1993	ES	6.5	297	UGL			GO
			TPHC	28-jan-1993	ES	6.5	182	UGL	LT		GO
WELL	MW004	SB01	HG	28-jan-1993	ES	6.5	0.243	UGL	LT		GO
WELL	MW004	SD09	TL	28-jan-1993	ES	6.5	6.99	UGL	LT		GO
WELL	MW004	SD20	PB	28-jan-1993	ES	6.5	1.26	UGL	LT		GO
WELL	MW004	SD21	SE	28-jan-1993	ES	6.5	3.02	UGL	LT		GO
WELL	MW004	SD22	AS	28-jan-1993	ES	6.5	2.54	UGL	LT		GO
WELL	MW004	SS10	AG	28-jan-1993	ES	6.5	4.6	UGL	LT		GO
			AL	28-jan-1993	ES	6.5	141	UGL	LT		GO
			BA	28-jan-1993	ES	6.5	44.3	UGL			GO
			BE	28-jan-1993	ES	6.5	5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			CA	28-jan-1993	ES	6.5	232000	UGL			GO
			CD	28-jan-1993	ES	6.5	4.01	UGL	LT		GO
			CO	28-jan-1993	ES	6.5	25	UGL	LT		GO
			CR	28-jan-1993	ES	6.5	6.02	UGL	LT		GO
			CU	28-jan-1993	ES	6.5	8.09	UGL	LT		GO
			FE	28-jan-1993	ES	6.5	138	UGL			GO
			K	28-jan-1993	ES	6.5	747	UGL			GO
			MG	28-jan-1993	ES	6.5	55400	UGL			GO
			MN	28-jan-1993	ES	6.5	8.97	UGL			GO
			NA	28-jan-1993	ES	6.5	129000	UGL			GO
			NI	28-jan-1993	ES	6.5	34.3	UGL	LT		GO
			SB	28-jan-1993	ES	6.5	38	UGL	LT		GO
			V	28-jan-1993	ES	6.5	11.8	UGL			GO
			ZN	28-jan-1993	ES	6.5	90.4	UGL			GO
WELL	MW004	TF18	CYN	28-jan-1993	ES	6.5	2.5	UGL	LT		GO
WELL	MW004	TF22	NIT	28-jan-1993	ES	6.5	36.2	UGL			GO
WELL	MW004	TT10	CL	28-jan-1993	ES	6.5	88000	UGL			GO
			SO4	28-jan-1993	ES	6.5	400000	UGL			GO
WELL	MW004	UH02	PCB016	28-jan-1993	ES	6.5	0.16	UGL	LT		GO
			PCB221	28-jan-1993	ES	6.5	0.16	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	6.5	0.16	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	6.5	0.19	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	6.5	0.19	UGL	ND	R	GO
			PCB254	28-jan-1993	ES	6.5	0.19	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	6.5	0.19	UGL	LT		GO
WELL	MW004	UH13	ABHC	28-jan-1993	ES	6.5	0.0385	UGL	LT		GO
WELL	MW004	UH13	ACLDAN	28-jan-1993	ES	6.5	0.075	UGL	ND	R	GO
			AENSLF	28-jan-1993	ES	6.5	0.023	UGL	LT		GO
			ALDRN	28-jan-1993	ES	6.5	0.0918	UGL	LT		GO
			BBHC	28-jan-1993	ES	6.5	0.024	UGL	LT		GO
			BENSLF	28-jan-1993	ES	6.5	0.023	UGL	LT		GO
			DBHC	28-jan-1993	ES	6.5	0.0293	UGL	LT		GO
			DLDRN	28-jan-1993	ES	6.5	0.024	UGL	LT		GO
			ENDRN	28-jan-1993	ES	6.5	0.0238	UGL	LT		GO
			ENDRNA	28-jan-1993	ES	6.5	0.0285	UGL	LT		GO
			ENDRNK	28-jan-1993	ES	6.5	0.0285	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	6.5	0.0786	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	6.5	0.075	UGL	ND	R	GO
			HPCL	28-jan-1993	ES	6.5	0.0423	UGL	LT		GO
			HPCLE	28-jan-1993	ES	6.5	0.0245	UGL	LT		GO
			ISODR	28-jan-1993	ES	6.5	0.0562	UGL	LT		GO
			LIN	28-jan-1993	ES	6.5	0.0507	UGL	LT		GO
			MEXCLR	28-jan-1993	ES	6.5	0.057	UGL	LT		GO
			PPDDD	28-jan-1993	ES	6.5	0.0233	UGL	LT		GO
			PPDDE	28-jan-1993	ES	6.5	0.027	UGL	LT		GO
			PPDDT	28-jan-1993	ES	6.5	0.034	UGL	LT		GO
			TXPHEN	28-jan-1993	ES	6.5	1.35	UGL	LT		GO
WELL	MW004	UM18	124TCB	28-jan-1993	ES	6.5	1.8	UGL	LT		GO
			12DCLB	28-jan-1993	ES	6.5	1.7	UGL	LT		GO
			12DPH	28-jan-1993	ES	6.5	2	UGL	ND	R	GO
			13DCLB	28-jan-1993	ES	6.5	1.7	UGL	LT		GO
			14DCLB	28-jan-1993	ES	6.5	1.7	UGL	LT		GO
			245TCP	28-jan-1993	ES	6.5	5.2	UGL	LT		GO
			246TCP	28-jan-1993	ES	6.5	4.2	UGL	LT		GO
			24DCLP	28-jan-1993	ES	6.5	2.9	UGL	LT		GO
			24DMPN	28-jan-1993	ES	6.5	5.8	UGL	LT		GO
			24DNP	28-jan-1993	ES	6.5	21	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			24DNT	28-jan-1993	ES	6.5	4.5	UGL	LT		GO
			26DNT	28-jan-1993	ES	6.5	0.79	UGL	LT		GO
			2CLP	28-jan-1993	ES	6.5	0.99	UGL	LT		GO
			2CNAP	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			2MNAP	28-jan-1993	ES	6.5	1.7	UGL	LT		GO
			2MP	28-jan-1993	ES	6.5	3.9	UGL	LT		GO
			2NANIL	28-jan-1993	ES	6.5	4.3	UGL	LT		GO
			2NP	28-jan-1993	ES	6.5	3.7	UGL	LT		GO
			33DCBD	28-jan-1993	ES	6.5	12	UGL	LT		GO
			3NANIL	28-jan-1993	ES	6.5	4.9	UGL	LT		GO
			46DN2C	28-jan-1993	ES	6.5	17	UGL	LT		GO
			4BRPPE	28-jan-1993	ES	6.5	4.2	UGL	LT		GO
			4CANIL	28-jan-1993	ES	6.5	7.3	UGL	LT		GO
			4CL3C	28-jan-1993	ES	6.5	4	UGL	LT		GO
			4CLPPE	28-jan-1993	ES	6.5	5.1	UGL	LT		GO
			4MP	28-jan-1993	ES	6.5	0.52	UGL	LT		GO
			4NANIL	28-jan-1993	ES	6.5	5.2	UGL	LT		GO
			4NP	28-jan-1993	ES	6.5	12	UGL	LT		GO
			ABHC	28-jan-1993	ES	6.5	4	UGL	ND	R	GO
			ACLDAN	28-jan-1993	ES	6.5	5.1	UGL	ND	R	GO
WELL	MW004	UM18	AENSLF	28-jan-1993	ES	6.5	9.2	UGL	ND	R	GO
			ALDRN	28-jan-1993	ES	6.5	4.7	UGL	ND	R	GO
			ANAPNE	28-jan-1993	ES	6.5	1.7	UGL	LT		GO
			ANAPYL	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			ANTRC	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			B2CEXM	28-jan-1993	ES	6.5	1.5	UGL	LT		GO
			B2CIPE	28-jan-1993	ES	6.5	5.3	UGL	LT		GO
			B2CLEE	28-jan-1993	ES	6.5	1.9	UGL	LT		GO
			B2EHP	28-jan-1993	ES	6.5	4.8	UGL	LT		GO
			BAANTR	28-jan-1993	ES	6.5	1.6	UGL	LT		GO
			BAPYR	28-jan-1993	ES	6.5	4.7	UGL	LT		GO
			BBFANT	28-jan-1993	ES	6.5	5.4	UGL	LT		GO
			BBHC	28-jan-1993	ES	6.5	4	UGL	ND	R	GO
			BBZP	28-jan-1993	ES	6.5	3.4	UGL	LT		GO
			BENSLF	28-jan-1993	ES	6.5	9.2	UGL	ND	R	GO
			BENZID	28-jan-1993	ES	6.5	10	UGL	ND	R	GO
			BENZOA	28-jan-1993	ES	6.5	13	UGL	LT		GO
			BGHIPY	28-jan-1993	ES	6.5	6.1	UGL	LT		GO
			BKFANT	28-jan-1993	ES	6.5	0.87	UGL	LT		GO
			BZALC	28-jan-1993	ES	6.5	0.72	UGL	LT		GO
			CARBAZ	28-jan-1993	ES	6.5	1.5	UGL	ND	R	GO
			CHRY	28-jan-1993	ES	6.5	2.4	UGL	LT		GO
			CL6BZ	28-jan-1993	ES	6.5	1.6	UGL	LT		GO
			CL6CP	28-jan-1993	ES	6.5	8.6	UGL	LT		GO
			CL6ET	28-jan-1993	ES	6.5	1.5	UGL	LT		GO
			DBAHA	28-jan-1993	ES	6.5	6.5	UGL	LT		GO
			DBHC	28-jan-1993	ES	6.5	4	UGL	ND	R	GO
			DBZFUR	28-jan-1993	ES	6.5	1.7	UGL	LT		GO
			DEP	28-jan-1993	ES	6.5	2	UGL	LT		GO
			DLDRN	28-jan-1993	ES	6.5	4.7	UGL	ND	R	GO
			DMP	28-jan-1993	ES	6.5	1.5	UGL	LT		GO
			DNBP	28-jan-1993	ES	6.5	3.7	UGL	LT		GO
			DNOP	28-jan-1993	ES	6.5	15	UGL	LT		GO
			ENDRN	28-jan-1993	ES	6.5	7.6	UGL	ND	R	GO
			ENDRNA	28-jan-1993	ES	6.5	8	UGL	ND	R	GO
			ENDRNK	28-jan-1993	ES	6.5	8	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	6.5	9.2	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			FANT	28-jan-1993	ES	6.5	3.3	UGL	LT		GO
			FLRENE	28-jan-1993	ES	6.5	3.7	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	6.5	5.1	UGL	ND	R	GO
			HCBD	28-jan-1993	ES	6.5	3.4	UGL	LT		GO
			HPCL	28-jan-1993	ES	6.5	2	UGL	ND	R	GO
			HPCLE	28-jan-1993	ES	6.5	5	UGL	ND	R	GO
			ICDPYR	28-jan-1993	ES	6.5	8.6	UGL	LT		GO
			ISOPHR	28-jan-1993	ES	6.5	4.8	UGL	LT		GO
			LIN	28-jan-1993	ES	6.5	4	UGL	ND	R	GO
			MEXCLR	28-jan-1993	ES	6.5	5.1	UGL	ND	R	GO
			NAP	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			NB	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			NNDMEA	28-jan-1993	ES	6.5	2	UGL	ND	R	GO
			NNDNPA	28-jan-1993	ES	6.5	4.4	UGL	LT		GO
			NNDPA	28-jan-1993	ES	6.5	3	UGL	LT		GO
WELL	MW004	UM18	PCB016	28-jan-1993	ES	6.5	21	UGL	ND	R	GO
			PCB221	28-jan-1993	ES	6.5	21	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	6.5	21	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	6.5	30	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	6.5	30	UGL	ND	R	GO
			PCB254	28-jan-1993	ES	6.5	36	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	6.5	36	UGL	ND	R	GO
			PCP	28-jan-1993	ES	6.5	18	UGL	LT		GO
			PHANTR	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			PHENOL	28-jan-1993	ES	6.5	9.2	UGL	LT		GO
			PPDDD	28-jan-1993	ES	6.5	4	UGL	ND	R	GO
			PPDDE	28-jan-1993	ES	6.5	4.7	UGL	ND	R	GO
			PPDDT	28-jan-1993	ES	6.5	9.2	UGL	ND	R	GO
			PYR	28-jan-1993	ES	6.5	2.8	UGL	LT		GO
			TXPHEN	28-jan-1993	ES	6.5	36	UGL	ND	R	GO
WELL	MW004	UM20	111TCE	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			112TCE	28-jan-1993	ES	6.5	1.2	UGL	LT		GO
			11DCE	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			11DCLE	28-jan-1993	ES	6.5	0.68	UGL	LT		GO
			12DCE	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			12DCLE	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			12DCLP	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			2CLEVE	28-jan-1993	ES	6.5	0.71	UGL	LT		GO
			ACET	28-jan-1993	ES	6.5	13	UGL	LT		GO
			ACROLN	28-jan-1993	ES	6.5	100	UGL	ND	R	GO
			ACRYLO	28-jan-1993	ES	6.5	100	UGL	ND	R	GO
			BRDCLM	28-jan-1993	ES	6.5	0.59	UGL	LT		GO
			C13DCP	28-jan-1993	ES	6.5	0.58	UGL	LT		GO
			C2AVE	28-jan-1993	ES	6.5	8.3	UGL	LT		GO
			C2H3CL	28-jan-1993	ES	6.5	2.6	UGL	LT		GO
			C2H5CL	28-jan-1993	ES	6.5	1.9	UGL	LT		GO
			C6H6	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			CCL3F	28-jan-1993	ES	6.5	1.4	UGL	LT		GO
			CCL4	28-jan-1993	ES	6.5	0.58	UGL	LT		GO
			CH2CL2	28-jan-1993	ES	6.5	2.3	UGL	LT		GO
			CH3BR	28-jan-1993	ES	6.5	5.8	UGL	LT		GO
			CH3CL	28-jan-1993	ES	6.5	3.2	UGL	LT		GO
			CHBR3	28-jan-1993	ES	6.5	2.6	UGL	LT		GO
			CHCL3	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			CL2BZ	28-jan-1993	ES	6.5	10	UGL	ND	R	GO
			CLC6H5	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			CS2	28-jan-1993	ES	6.5	0.5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			DBRCLM	28-jan-1993	ES	6.5	0.67	UGL	LT		GO
			ETC6H5	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			MEC6H5	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			MEK	28-jan-1993	ES	6.5	6.4	UGL	LT		GO
			MIBK	28-jan-1993	ES	6.5	3	UGL	LT		GO
			MNBK	28-jan-1993	ES	6.5	3.6	UGL	LT		GO
			STYR	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			T13DCP	28-jan-1993	ES	6.5	0.7	UGL	LT		GO
			TCLEA	28-jan-1993	ES	6.5	0.51	UGL	LT		GO
WELL	MW004	UM20	TCLEE	28-jan-1993	ES	6.5	1.6	UGL	LT		GO
			TRCLE	28-jan-1993	ES	6.5	0.5	UGL	LT		GO
			XYLEN	28-jan-1993	ES	6.5	0.84	UGL	LT		GO
WELL	MW010	00	OILGR	28-jan-1993	ES	4.6	359	UGL			GO
			TPHC	28-jan-1993	ES	4.6	182	UGL	LT		GO
WELL	MW010	SB01	HG	28-jan-1993	ES	4.6	0.243	UGL	LT		GO
WELL	MW010	SD09	TL	28-jan-1993	ES	4.6	6.99	UGL	LT		GO
WELL	MW010	SD20	PB	28-jan-1993	ES	4.6	1.26	UGL	LT		GO
WELL	MW010	SD21	SE	28-jan-1993	ES	4.6	3.02	UGL	LT		GO
WELL	MW010	SD22	AS	28-jan-1993	ES	4.6	2.54	UGL	LT		GO
WELL	MW010	SS10	AG	28-jan-1993	ES	4.6	4.6	UGL	LT		GO
			AL	28-jan-1993	ES	4.6	141	UGL	LT		GO
			BA	28-jan-1993	ES	4.6	62.5	UGL			GO
			BE	28-jan-1993	ES	4.6	5	UGL	LT		GO
			CA	28-jan-1993	ES	4.6	189000	UGL			GO
			CD	28-jan-1993	ES	4.6	4.01	UGL	LT		GO
			CO	28-jan-1993	ES	4.6	25	UGL	LT		GO
			CR	28-jan-1993	ES	4.6	6.02	UGL	LT		GO
			CU	28-jan-1993	ES	4.6	8.09	UGL	LT		GO
			FE	28-jan-1993	ES	4.6	38.8	UGL	LT		GO
			K	28-jan-1993	ES	4.6	2840	UGL			GO
			MG	28-jan-1993	ES	4.6	60200	UGL			GO
			MN	28-jan-1993	ES	4.6	4.98	UGL			GO
			NA	28-jan-1993	ES	4.6	282000	UGL			GO
			NI	28-jan-1993	ES	4.6	34.3	UGL	LT		GO
			SB	28-jan-1993	ES	4.6	38	UGL	LT		GO
			V	28-jan-1993	ES	4.6	11	UGL	LT		GO
			ZN	28-jan-1993	ES	4.6	100	UGL			GO
WELL	MW010	TF18	CYN	28-jan-1993	ES	4.6	2.5	UGL	LT		GO
WELL	MW010	TF22	NIT	28-jan-1993	ES	4.6	42.3	UGL			GO
WELL	MW010	TT10	CL	28-jan-1993	ES	4.6	520000	UGL			GO
			SO4	28-jan-1993	ES	4.6	145000	UGL			GO
WELL	MW010	UH02	PCB016	28-jan-1993	ES	4.6	0.16	UGL	LT		GO
			PCB221	28-jan-1993	ES	4.6	0.16	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	4.6	0.16	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	4.6	0.19	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	4.6	0.19	UGL	ND	R	GO
			PCB254	28-jan-1993	ES	4.6	0.19	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	4.6	0.19	UGL	LT		GO
WELL	MW010	UH13	ABHC	28-jan-1993	ES	4.6	0.0385	UGL	LT		GO
WELL	MW010	UH13	ACLDAN	28-jan-1993	ES	4.6	0.075	UGL	ND	R	GO
			AENSLF	28-jan-1993	ES	4.6	0.023	UGL	LT		GO
			ALDRN	28-jan-1993	ES	4.6	0.0918	UGL	LT		GO
			BBHC	28-jan-1993	ES	4.6	0.024	UGL	LT		GO
			BENSLF	28-jan-1993	ES	4.6	0.023	UGL	LT		GO
			DBHC	28-jan-1993	ES	4.6	0.0293	UGL	LT		GO
			DLDRN	28-jan-1993	ES	4.6	0.024	UGL	LT		GO
			ENDRN	28-jan-1993	ES	4.6	0.0238	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			ENDRNA	28-jan-1993	ES	4.6	0.0285	UGL	LT		GO
			ENDRNK	28-jan-1993	ES	4.6	0.0285	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	4.6	0.0786	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	4.6	0.075	UGL	ND	R	GO
			HPCL	28-jan-1993	ES	4.6	0.0423	UGL	LT		GO
			HPCLE	28-jan-1993	ES	4.6	0.0245	UGL	LT		GO
			ISODR	28-jan-1993	ES	4.6	0.0562	UGL	LT		GO
			LIN	28-jan-1993	ES	4.6	0.0507	UGL	LT		GO
			MEXCLR	28-jan-1993	ES	4.6	0.057	UGL	LT		GO
			PPDDD	28-jan-1993	ES	4.6	0.0233	UGL	LT		GO
			PPDDE	28-jan-1993	ES	4.6	0.027	UGL	LT		GO
			PPDDT	28-jan-1993	ES	4.6	0.034	UGL	LT		GO
			TXPHEN	28-jan-1993	ES	4.6	1.35	UGL	LT		GO
WELL	MW010	UM18	124TCB	28-jan-1993	ES	4.6	1.8	UGL	LT		GO
			12DCLB	28-jan-1993	ES	4.6	1.7	UGL	LT		GO
			12DPH	28-jan-1993	ES	4.6	2	UGL	ND	R	GO
			13DCLB	28-jan-1993	ES	4.6	1.7	UGL	LT		GO
			14DCLB	28-jan-1993	ES	4.6	1.7	UGL	LT		GO
			245TCP	28-jan-1993	ES	4.6	5.2	UGL	LT		GO
			246TCP	28-jan-1993	ES	4.6	4.2	UGL	LT		GO
			24DCLP	28-jan-1993	ES	4.6	2.9	UGL	LT		GO
			24DMPN	28-jan-1993	ES	4.6	5.8	UGL	LT		GO
			24DNP	28-jan-1993	ES	4.6	21	UGL	LT		GO
			24DNT	28-jan-1993	ES	4.6	4.5	UGL	LT		GO
			26DNT	28-jan-1993	ES	4.6	0.79	UGL	LT		GO
			2CLP	28-jan-1993	ES	4.6	0.99	UGL	LT		GO
			2CNAP	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			2MNAP	28-jan-1993	ES	4.6	1.7	UGL	LT		GO
			2MP	28-jan-1993	ES	4.6	3.9	UGL	LT		GO
			2NANIL	28-jan-1993	ES	4.6	4.3	UGL	LT		GO
			2NP	28-jan-1993	ES	4.6	3.7	UGL	LT		GO
			33DCBD	28-jan-1993	ES	4.6	12	UGL	LT		GO
			3NANIL	28-jan-1993	ES	4.6	4.9	UGL	LT		GO
			46DN2C	28-jan-1993	ES	4.6	17	UGL	LT		GO
			4BRPPE	28-jan-1993	ES	4.6	4.2	UGL	LT		GO
			4CANIL	28-jan-1993	ES	4.6	7.3	UGL	LT		GO
			4CL3C	28-jan-1993	ES	4.6	4	UGL	LT		GO
			4CLPPE	28-jan-1993	ES	4.6	5.1	UGL	LT		GO
			4MP	28-jan-1993	ES	4.6	0.52	UGL	LT		GO
			4NANIL	28-jan-1993	ES	4.6	5.2	UGL	LT		GO
			4NP	28-jan-1993	ES	4.6	12	UGL	LT		GO
			ABHC	28-jan-1993	ES	4.6	4	UGL	ND	R	GO
			ACLDAN	28-jan-1993	ES	4.6	5.1	UGL	ND	R	GO
WELL	MW010	UM18	AENSLF	28-jan-1993	ES	4.6	9.2	UGL	ND	R	GO
			ALDRN	28-jan-1993	ES	4.6	4.7	UGL	ND	R	GO
			ANAPNE	28-jan-1993	ES	4.6	1.7	UGL	LT		GO
			ANAPYL	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			ANTRC	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			B2CEXM	28-jan-1993	ES	4.6	1.5	UGL	LT		GO
			B2CIPE	28-jan-1993	ES	4.6	5.3	UGL	LT		GO
			B2CLEE	28-jan-1993	ES	4.6	1.9	UGL	LT		GO
			B2EHP	28-jan-1993	ES	4.6	4.8	UGL	LT		GO
			BAANTR	28-jan-1993	ES	4.6	1.6	UGL	LT		GO
			BAPYR	28-jan-1993	ES	4.6	4.7	UGL	LT		GO
			BBFANT	28-jan-1993	ES	4.6	5.4	UGL	LT		GO
			BBHC	28-jan-1993	ES	4.6	4	UGL	ND	R	GO
			BBZP	28-jan-1993	ES	4.6	3.4	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			BENSLF	28-jan-1993	ES	4.6	9.2	UGL	ND	R	GO
			BENZID	28-jan-1993	ES	4.6	10	UGL	ND	R	GO
			BENZOA	28-jan-1993	ES	4.6	13	UGL	LT		GO
			BGHIPY	28-jan-1993	ES	4.6	6.1	UGL	LT		GO
			BKFANT	28-jan-1993	ES	4.6	0.87	UGL	LT		GO
			BZALC	28-jan-1993	ES	4.6	0.72	UGL	LT		GO
			CARBAZ	28-jan-1993	ES	4.6	1.5	UGL	ND	R	GO
			CHRY	28-jan-1993	ES	4.6	2.4	UGL	LT		GO
			CL6BZ	28-jan-1993	ES	4.6	1.6	UGL	LT		GO
			CL6CP	28-jan-1993	ES	4.6	8.6	UGL	LT		GO
			CL6ET	28-jan-1993	ES	4.6	1.5	UGL	LT		GO
			DBAHA	28-jan-1993	ES	4.6	6.5	UGL	LT		GO
			DBHC	28-jan-1993	ES	4.6	4	UGL	ND	R	GO
			DBZFUR	28-jan-1993	ES	4.6	1.7	UGL	LT		GO
			DEP	28-jan-1993	ES	4.6	2	UGL	LT		GO
			DLDRN	28-jan-1993	ES	4.6	4.7	UGL	ND	R	GO
			DMP	28-jan-1993	ES	4.6	1.5	UGL	LT		GO
			DNBP	28-jan-1993	ES	4.6	3.7	UGL	LT		GO
			DNOP	28-jan-1993	ES	4.6	15	UGL	LT		GO
			ENDRN	28-jan-1993	ES	4.6	7.6	UGL	ND	R	GO
			ENDRNA	28-jan-1993	ES	4.6	8	UGL	ND	R	GO
			ENDRNK	28-jan-1993	ES	4.6	8	UGL	ND	R	GO
			ESFSO4	28-jan-1993	ES	4.6	9.2	UGL	ND	R	GO
			FANT	28-jan-1993	ES	4.6	3.3	UGL	LT		GO
			FLRENE	28-jan-1993	ES	4.6	3.7	UGL	LT		GO
			GCLDAN	28-jan-1993	ES	4.6	5.1	UGL	ND	R	GO
			HCBD	28-jan-1993	ES	4.6	3.4	UGL	LT		GO
			HPCL	28-jan-1993	ES	4.6	2	UGL	ND	R	GO
			HPCLE	28-jan-1993	ES	4.6	5	UGL	ND	R	GO
			ICDPYR	28-jan-1993	ES	4.6	8.6	UGL	LT		GO
			ISOPHR	28-jan-1993	ES	4.6	4.8	UGL	LT		GO
			LIN	28-jan-1993	ES	4.6	4	UGL	ND	R	GO
			MEXCLR	28-jan-1993	ES	4.6	5.1	UGL	ND	R	GO
			NAP	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			NB	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			NNDMEA	28-jan-1993	ES	4.6	2	UGL	ND	R	GO
			NNDNPA	28-jan-1993	ES	4.6	4.4	UGL	LT		GO
			NNDPA	28-jan-1993	ES	4.6	3	UGL	LT		GO
WELL	MW010	UM18	PCB016	28-jan-1993	ES	4.6	21	UGL	ND	R	GO
			PCB221	28-jan-1993	ES	4.6	21	UGL	ND	R	GO
			PCB232	28-jan-1993	ES	4.6	21	UGL	ND	R	GO
			PCB242	28-jan-1993	ES	4.6	30	UGL	ND	R	GO
			PCB248	28-jan-1993	ES	4.6	30	UGL	ND	R	GO
			PCB254	28-jan-1993	ES	4.6	36	UGL	ND	R	GO
			PCB260	28-jan-1993	ES	4.6	36	UGL	ND	R	GO
			PCP	28-jan-1993	ES	4.6	18	UGL	LT		GO
			PHANTR	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			PHENOL	28-jan-1993	ES	4.6	9.2	UGL	LT		GO
			PPDDD	28-jan-1993	ES	4.6	4	UGL	ND	R	GO
			PPDDE	28-jan-1993	ES	4.6	4.7	UGL	ND	R	GO
			PPDDT	28-jan-1993	ES	4.6	9.2	UGL	ND	R	GO
			PYR	28-jan-1993	ES	4.6	2.8	UGL	LT		GO
			TXPHEN	28-jan-1993	ES	4.6	36	UGL	ND	R	GO
WELL	MW010	UM20	111TCE	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			112TCE	28-jan-1993	ES	4.6	1.2	UGL	LT		GO
			11DCE	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			11DCLE	28-jan-1993	ES	4.6	0.68	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			12DCE	28-jan-1993	ES	4.6	1.2	UGL			GO
			12DCLE	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			12DCLP	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			2CLEVE	28-jan-1993	ES	4.6	0.71	UGL	LT		GO
			ACET	28-jan-1993	ES	4.6	13	UGL	LT		GO
			ACROLN	28-jan-1993	ES	4.6	100	UGL	ND	R	GO
			ACRYLO	28-jan-1993	ES	4.6	100	UGL	ND	R	GO
			BRDCLM	28-jan-1993	ES	4.6	0.59	UGL	LT		GO
			C13DCP	28-jan-1993	ES	4.6	0.58	UGL	LT		GO
			C2AVE	28-jan-1993	ES	4.6	8.3	UGL	LT		GO
			C2H3CL	28-jan-1993	ES	4.6	2.6	UGL	LT		GO
			C2H5CL	28-jan-1993	ES	4.6	1.9	UGL	LT		GO
			C6H6	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			CCL3F	28-jan-1993	ES	4.6	1.4	UGL	LT		GO
			CCL4	28-jan-1993	ES	4.6	0.58	UGL	LT		GO
			CH2CL2	28-jan-1993	ES	4.6	2.3	UGL	LT		GO
			CH3BR	28-jan-1993	ES	4.6	5.8	UGL	LT		GO
			CH3CL	28-jan-1993	ES	4.6	3.2	UGL	LT		GO
			CHBR3	28-jan-1993	ES	4.6	2.6	UGL	LT		GO
			CHCL3	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			CL2BZ	28-jan-1993	ES	4.6	10	UGL	ND	R	GO
			CLC6H5	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			CS2	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			DBRCLM	28-jan-1993	ES	4.6	0.67	UGL	LT		GO
			ETC6H5	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			MEC6H5	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			MEK	28-jan-1993	ES	4.6	6.4	UGL	LT		GO
			MIBK	28-jan-1993	ES	4.6	3	UGL	LT		GO
			MNBK	28-jan-1993	ES	4.6	3.6	UGL	LT		GO
			STYR	28-jan-1993	ES	4.6	0.5	UGL	LT		GO
			T13DCP	28-jan-1993	ES	4.6	0.7	UGL	LT		GO
			TCLEA	28-jan-1993	ES	4.6	0.51	UGL	LT		GO
WELL	MW010	UM20	TCLEE	28-jan-1993	ES	4.6	1.6	UGL	LT		GO
			TRCLE	28-jan-1993	ES	4.6	0.62	UGL			GO
			XYLEN	28-jan-1993	ES	4.6	0.84	UGL	LT		GO
WELL	MW014	00	OILGR	27-jan-1993	ES	6.5	195	UGL	LT		GO
			TPHC	27-jan-1993	ES	6.5	195	UGL	LT		GO
WELL	MW014	SB01	HG	27-jan-1993	ES	6.5	0.243	UGL	LT		GO
WELL	MW014	SD09	TL	27-jan-1993	ES	6.5	6.99	UGL	LT		GO
WELL	MW014	SD20	PB	27-jan-1993	ES	6.5	1.26	UGL	LT		GO
WELL	MW014	SD21	SE	27-jan-1993	ES	6.5	3.02	UGL	LT		GO
WELL	MW014	SD22	AS	27-jan-1993	ES	6.5	2.54	UGL	LT		GO
WELL	MW014	SS10	AG	27-jan-1993	ES	6.5	4.6	UGL	LT		GO
			AL	27-jan-1993	ES	6.5	141	UGL	LT		GO
			BA	27-jan-1993	ES	6.5	162	UGL			GO
			BE	27-jan-1993	ES	6.5	5	UGL	LT		GO
			CA	27-jan-1993	ES	6.5	229000	UGL			GO
			CD	27-jan-1993	ES	6.5	4.01	UGL	LT		GO
			CO	27-jan-1993	ES	6.5	25	UGL	LT		GO
			CR	27-jan-1993	ES	6.5	6.02	UGL	LT		GO
			CU	27-jan-1993	ES	6.5	8.09	UGL	LT		GO
			FE	27-jan-1993	ES	6.5	38.8	UGL	LT		GO
			K	27-jan-1993	ES	6.5	3460	UGL			GO
			MG	27-jan-1993	ES	6.5	152000	UGL			GO
			MN	27-jan-1993	ES	6.5	14	UGL			GO
			NA	27-jan-1993	ES	6.5	309000	UGL			GO
			NI	27-jan-1993	ES	6.5	34.3	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			SB	27-jan-1993	ES	6.5	38	UGL	LT		GO
			V	27-jan-1993	ES	6.5	15.2	UGL			GO
			ZN	27-jan-1993	ES	6.5	26.3	UGL			GO
WELL	MW014	TF18	CYN	27-jan-1993	ES	6.5	2.5	UGL	LT		GO
WELL	MW014	TF22	NIT	27-jan-1993	ES	6.5	46.7	UGL			GO
WELL	MW014	TT10	CL	27-jan-1993	ES	6.5	1000000	UGL			GO
			SO4	27-jan-1993	ES	6.5	142000	UGL			GO
WELL	MW014	UH02	PCB016	27-jan-1993	ES	6.5	0.16	UGL	LT		GO
			PCB221	27-jan-1993	ES	6.5	0.16	UGL	ND	R	GO
			PCB232	27-jan-1993	ES	6.5	0.16	UGL	ND	R	GO
			PCB242	27-jan-1993	ES	6.5	0.19	UGL	ND	R	GO
			PCB248	27-jan-1993	ES	6.5	0.19	UGL	ND	R	GO
			PCB254	27-jan-1993	ES	6.5	0.19	UGL	ND	R	GO
			PCB260	27-jan-1993	ES	6.5	0.19	UGL	LT		GO
WELL	MW014	UH13	ABHC	27-jan-1993	ES	6.5	0.0385	UGL	LT		GO
WELL	MW014	UH13	ACLDAN	27-jan-1993	ES	6.5	0.075	UGL	ND	R	GO
			AENSLF	27-jan-1993	ES	6.5	0.023	UGL	LT		GO
			ALDRN	27-jan-1993	ES	6.5	0.0918	UGL	LT		GO
			BBHC	27-jan-1993	ES	6.5	0.024	UGL	LT		GO
			BENSLF	27-jan-1993	ES	6.5	0.023	UGL	LT		GO
			DBHC	27-jan-1993	ES	6.5	0.0293	UGL	LT		GO
			DLDRN	27-jan-1993	ES	6.5	0.024	UGL	LT		GO
			ENDRN	27-jan-1993	ES	6.5	0.0238	UGL	LT		GO
			ENDRNA	27-jan-1993	ES	6.5	0.0285	UGL	LT		GO
			ENDRNK	27-jan-1993	ES	6.5	0.0285	UGL	ND	R	GO
			ESFSO4	27-jan-1993	ES	6.5	0.0786	UGL	LT		GO
			GCLDAN	27-jan-1993	ES	6.5	0.075	UGL	ND	R	GO
			HPCL	27-jan-1993	ES	6.5	0.0423	UGL	LT		GO
			HPCLE	27-jan-1993	ES	6.5	0.0245	UGL	LT		GO
			ISODR	27-jan-1993	ES	6.5	0.0562	UGL	LT		GO
			LIN	27-jan-1993	ES	6.5	0.0507	UGL	LT		GO
			MEXCLR	27-jan-1993	ES	6.5	0.057	UGL	LT		GO
			PPDDD	27-jan-1993	ES	6.5	0.0233	UGL	LT		GO
			PPDDE	27-jan-1993	ES	6.5	0.027	UGL	LT		GO
			PPDDT	27-jan-1993	ES	6.5	0.034	UGL	LT		GO
			TXPHEN	27-jan-1993	ES	6.5	1.35	UGL	LT		GO
WELL	MW014	UM18	124TCB	27-jan-1993	ES	6.5	1.8	UGL	LT		GO
			12DCLB	27-jan-1993	ES	6.5	1.7	UGL	LT		GO
			12DPH	27-jan-1993	ES	6.5	2	UGL	ND	R	GO
			13DCLB	27-jan-1993	ES	6.5	1.7	UGL	LT		GO
			14DCLB	27-jan-1993	ES	6.5	1.7	UGL	LT		GO
			245TCP	27-jan-1993	ES	6.5	5.2	UGL	LT		GO
			246TCP	27-jan-1993	ES	6.5	4.2	UGL	LT		GO
			24DCLP	27-jan-1993	ES	6.5	2.9	UGL	LT		GO
			24DMPN	27-jan-1993	ES	6.5	5.8	UGL	LT		GO
			24DNP	27-jan-1993	ES	6.5	21	UGL	LT		GO
			24DNT	27-jan-1993	ES	6.5	4.5	UGL	LT		GO
			26DNT	27-jan-1993	ES	6.5	0.79	UGL	LT		GO
			2CLP	27-jan-1993	ES	6.5	0.99	UGL	LT		GO
			2CNAP	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			2MNAP	27-jan-1993	ES	6.5	1.7	UGL	LT		GO
			2MP	27-jan-1993	ES	6.5	3.9	UGL	LT		GO
			2NANIL	27-jan-1993	ES	6.5	4.3	UGL	LT		GO
			2NP	27-jan-1993	ES	6.5	3.7	UGL	LT		GO
			33DCBD	27-jan-1993	ES	6.5	12	UGL	LT		GO
			3NANIL	27-jan-1993	ES	6.5	4.9	UGL	LT		GO
			46DN2C	27-jan-1993	ES	6.5	17	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			4BRPPE	27-jan-1993	ES	6.5	4.2	UGL	LT		GO
			4CANIL	27-jan-1993	ES	6.5	7.3	UGL	LT		GO
			4CL3C	27-jan-1993	ES	6.5	4	UGL	LT		GO
			4CLPPE	27-jan-1993	ES	6.5	5.1	UGL	LT		GO
			4MP	27-jan-1993	ES	6.5	0.52	UGL	LT		GO
			4NANIL	27-jan-1993	ES	6.5	5.2	UGL	LT		GO
			4NP	27-jan-1993	ES	6.5	12	UGL	LT		GO
			ABHC	27-jan-1993	ES	6.5	4	UGL	ND	R	GO
			ACLDAN	27-jan-1993	ES	6.5	5.1	UGL	ND	R	GO
WELL	MW014	UM18	AENSLF	27-jan-1993	ES	6.5	9.2	UGL	ND	R	GO
			ALDRN	27-jan-1993	ES	6.5	4.7	UGL	ND	R	GO
			ANAPNE	27-jan-1993	ES	6.5	1.7	UGL	LT		GO
			ANAPYL	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			ANTRC	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			B2CEXM	27-jan-1993	ES	6.5	1.5	UGL	LT		GO
			B2CIPE	27-jan-1993	ES	6.5	5.3	UGL	LT		GO
			B2CLEE	27-jan-1993	ES	6.5	1.9	UGL	LT		GO
			B2EHP	27-jan-1993	ES	6.5	6.2	UGL			GO
			BAANTR	27-jan-1993	ES	6.5	1.6	UGL	LT		GO
			BAPYR	27-jan-1993	ES	6.5	4.7	UGL	LT		GO
			BBFANT	27-jan-1993	ES	6.5	5.4	UGL	LT		GO
			BBHC	27-jan-1993	ES	6.5	4	UGL	ND	R	GO
			BBZP	27-jan-1993	ES	6.5	3.4	UGL	LT		GO
			BENSLF	27-jan-1993	ES	6.5	9.2	UGL	ND	R	GO
			BENZID	27-jan-1993	ES	6.5	10	UGL	ND	R	GO
			BENZOA	27-jan-1993	ES	6.5	13	UGL	LT		GO
			BGHIPY	27-jan-1993	ES	6.5	6.1	UGL	LT		GO
			BKFANT	27-jan-1993	ES	6.5	0.87	UGL	LT		GO
			BZALC	27-jan-1993	ES	6.5	0.72	UGL	LT		GO
			CARBAZ	27-jan-1993	ES	6.5	1.5	UGL	ND	R	GO
			CHRY	27-jan-1993	ES	6.5	2.4	UGL	LT		GO
			CL6BZ	27-jan-1993	ES	6.5	1.6	UGL	LT		GO
			CL6CP	27-jan-1993	ES	6.5	8.6	UGL	LT		GO
			CL6ET	27-jan-1993	ES	6.5	1.5	UGL	LT		GO
			DBAHA	27-jan-1993	ES	6.5	6.5	UGL	LT		GO
			DBHC	27-jan-1993	ES	6.5	4	UGL	ND	R	GO
			DBZFUR	27-jan-1993	ES	6.5	1.7	UGL	LT		GO
			DEP	27-jan-1993	ES	6.5	2	UGL	LT		GO
			DLDRN	27-jan-1993	ES	6.5	4.7	UGL	ND	R	GO
			DMP	27-jan-1993	ES	6.5	1.5	UGL	LT		GO
			DNBP	27-jan-1993	ES	6.5	3.7	UGL	LT		GO
			DNOP	27-jan-1993	ES	6.5	15	UGL	LT		GO
			ENDRN	27-jan-1993	ES	6.5	7.6	UGL	ND	R	GO
			ENDRNA	27-jan-1993	ES	6.5	8	UGL	ND	R	GO
			ENDRNK	27-jan-1993	ES	6.5	8	UGL	ND	R	GO
			ESFSO4	27-jan-1993	ES	6.5	9.2	UGL	ND	R	GO
			FANT	27-jan-1993	ES	6.5	3.3	UGL	LT		GO
			FLRENE	27-jan-1993	ES	6.5	3.7	UGL	LT		GO
			GCLDAN	27-jan-1993	ES	6.5	5.1	UGL	ND	R	GO
			HCBD	27-jan-1993	ES	6.5	3.4	UGL	LT		GO
			HPCL	27-jan-1993	ES	6.5	2	UGL	ND	R	GO
			HPCLE	27-jan-1993	ES	6.5	5	UGL	ND	R	GO
			ICDPYR	27-jan-1993	ES	6.5	8.6	UGL	LT		GO
			ISOPHR	27-jan-1993	ES	6.5	4.8	UGL	LT		GO
			LIN	27-jan-1993	ES	6.5	4	UGL	ND	R	GO
			MEXCLR	27-jan-1993	ES	6.5	5.1	UGL	ND	R	GO
			NAP	27-jan-1993	ES	6.5	0.5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			NB	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			NNDMEA	27-jan-1993	ES	6.5	2	UGL	ND	R	GO
			NNDNPA	27-jan-1993	ES	6.5	4.4	UGL	LT		GO
			NNDPA	27-jan-1993	ES	6.5	3	UGL	LT		GO
WELL	MW014	UM18	PCB016	27-jan-1993	ES	6.5	21	UGL	ND	R	GO
			PCB221	27-jan-1993	ES	6.5	21	UGL	ND	R	GO
			PCB232	27-jan-1993	ES	6.5	21	UGL	ND	R	GO
			PCB242	27-jan-1993	ES	6.5	30	UGL	ND	R	GO
			PCB248	27-jan-1993	ES	6.5	30	UGL	ND	R	GO
			PCB254	27-jan-1993	ES	6.5	36	UGL	ND	R	GO
			PCB260	27-jan-1993	ES	6.5	36	UGL	ND	R	GO
			PCP	27-jan-1993	ES	6.5	18	UGL	LT		GO
			PHANTR	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			PHENOL	27-jan-1993	ES	6.5	9.2	UGL	LT		GO
			PPDDD	27-jan-1993	ES	6.5	4	UGL	ND	R	GO
			PPDDE	27-jan-1993	ES	6.5	4.7	UGL	ND	R	GO
			PPDDT	27-jan-1993	ES	6.5	9.2	UGL	ND	R	GO
			PYR	27-jan-1993	ES	6.5	2.8	UGL	LT		GO
			TXPHEN	27-jan-1993	ES	6.5	36	UGL	ND	R	GO
WELL	MW014	UM20	111TCE	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			112TCE	27-jan-1993	ES	6.5	1.2	UGL	LT		GO
			11DCE	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			11DCLE	27-jan-1993	ES	6.5	0.68	UGL	LT		GO
			12DCE	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			12DCLE	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			12DCLP	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			2CLEVE	27-jan-1993	ES	6.5	0.71	UGL	LT		GO
			ACET	27-jan-1993	ES	6.5	13	UGL	LT		GO
			ACROLN	27-jan-1993	ES	6.5	100	UGL	ND	R	GO
			ACRYLO	27-jan-1993	ES	6.5	100	UGL	ND	R	GO
			BRDCLM	27-jan-1993	ES	6.5	0.59	UGL	LT		GO
			C13DCP	27-jan-1993	ES	6.5	0.58	UGL	LT		GO
			C2AVE	27-jan-1993	ES	6.5	8.3	UGL	LT		GO
			C2H3CL	27-jan-1993	ES	6.5	2.6	UGL	LT		GO
			C2H5CL	27-jan-1993	ES	6.5	1.9	UGL	LT		GO
			C6H6	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			CCL3F	27-jan-1993	ES	6.5	1.4	UGL	LT		GO
			CCL4	27-jan-1993	ES	6.5	0.58	UGL	LT		GO
			CH2CL2	27-jan-1993	ES	6.5	2.3	UGL	LT		GO
			CH3BR	27-jan-1993	ES	6.5	5.8	UGL	LT		GO
			CH3CL	27-jan-1993	ES	6.5	3.2	UGL	LT		GO
			CHBR3	27-jan-1993	ES	6.5	2.6	UGL	LT		GO
			CHCL3	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			CL2BZ	27-jan-1993	ES	6.5	10	UGL	ND	R	GO
			CLC6H5	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			CS2	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			DBRCLM	27-jan-1993	ES	6.5	0.67	UGL	LT		GO
			ETC6H5	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			MEC6H5	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			MEK	27-jan-1993	ES	6.5	6.4	UGL	LT		GO
			MIBK	27-jan-1993	ES	6.5	3	UGL	LT		GO
			MNBK	27-jan-1993	ES	6.5	3.6	UGL	LT		GO
			STYR	27-jan-1993	ES	6.5	0.5	UGL	LT		GO
			T13DCP	27-jan-1993	ES	6.5	0.7	UGL	LT		GO
			TCLEA	27-jan-1993	ES	6.5	0.51	UGL	LT		GO
WELL	MW014	UM20	TCLEE	27-jan-1993	ES	6.5	1.6	UGL	LT		GO
			TRCLE	27-jan-1993	ES	6.5	0.5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			XYLEN	27-jan-1993	ES	6.5	0.84	UGL	LT		GO
WELL	MW016	00	OILGR	27-jan-1993	ES	7.5	188	UGL	LT		GO
			TPHC	27-jan-1993	ES	7.5	188	UGL	LT		GO
WELL	MW016	SB01	HG	27-jan-1993	ES	7.5	0.243	UGL	LT		GO
WELL	MW016	SD09	TL	27-jan-1993	ES	7.5	6.99	UGL	LT		GO
WELL	MW016	SD20	PB	27-jan-1993	ES	7.5	1.26	UGL	LT		GO
WELL	MW016	SD21	SE	27-jan-1993	ES	7.5	3.02	UGL	LT		GO
WELL	MW016	SD22	AS	27-jan-1993	ES	7.5	2.54	UGL	LT		GO
WELL	MW016	SS10	AG	27-jan-1993	ES	7.5	4.6	UGL	LT		GO
			AL	27-jan-1993	ES	7.5	141	UGL	LT		GO
			BA	27-jan-1993	ES	7.5	94.4	UGL			GO
			BE	27-jan-1993	ES	7.5	5	UGL	LT		GO
			CA	27-jan-1993	ES	7.5	207000	UGL			GO
			CD	27-jan-1993	ES	7.5	4.01	UGL	LT		GO
			CO	27-jan-1993	ES	7.5	25	UGL	LT		GO
			CR	27-jan-1993	ES	7.5	6.02	UGL	LT		GO
			CU	27-jan-1993	ES	7.5	8.09	UGL	LT		GO
			FE	27-jan-1993	ES	7.5	38.8	UGL	LT		GO
			K	27-jan-1993	ES	7.5	375	UGL	LT		GO
			MG	27-jan-1993	ES	7.5	53300	UGL			GO
			MN	27-jan-1993	ES	7.5	1750	UGL			GO
			NA	27-jan-1993	ES	7.5	413000	UGL			GO
			NI	27-jan-1993	ES	7.5	34.3	UGL	LT		GO
			SB	27-jan-1993	ES	7.5	38	UGL	LT		GO
			V	27-jan-1993	ES	7.5	11	UGL	LT		GO
			ZN	27-jan-1993	ES	7.5	34.2	UGL			GO
WELL	MW016	TF18	CYN	27-jan-1993	ES	7.5	2.5	UGL	LT		GO
WELL	MW016	TF22	NIT	27-jan-1993	ES	7.5	19.3	UGL			GO
WELL	MW016	TT10	CL	27-jan-1993	ES	7.5	1000000	UGL			GO
			SO4	27-jan-1993	ES	7.5	109000	UGL			GO
WELL	MW016	UH02	PCB016	27-jan-1993	ES	7.5	0.16	UGL	LT		GO
			PCB221	27-jan-1993	ES	7.5	0.16	UGL	ND	R	GO
			PCB232	27-jan-1993	ES	7.5	0.16	UGL	ND	R	GO
			PCB242	27-jan-1993	ES	7.5	0.19	UGL	ND	R	GO
			PCB248	27-jan-1993	ES	7.5	0.19	UGL	ND	R	GO
			PCB254	27-jan-1993	ES	7.5	0.19	UGL	ND	R	GO
			PCB260	27-jan-1993	ES	7.5	0.19	UGL	LT		GO
WELL	MW016	UH13	ABHC	27-jan-1993	ES	7.5	0.0385	UGL	LT		GO
WELL	MW016	UH13	ACLDAN	27-jan-1993	ES	7.5	0.075	UGL	ND	R	GO
			AENSLF	27-jan-1993	ES	7.5	0.023	UGL	LT		GO
			ALDRN	27-jan-1993	ES	7.5	0.0918	UGL	LT		GO
			BBHC	27-jan-1993	ES	7.5	0.024	UGL	LT		GO
			BENSLF	27-jan-1993	ES	7.5	0.023	UGL	LT		GO
			DBHC	27-jan-1993	ES	7.5	0.0293	UGL	LT		GO
			DLDRN	27-jan-1993	ES	7.5	0.024	UGL	LT		GO
			ENDRN	27-jan-1993	ES	7.5	0.0238	UGL	LT		GO
			ENDRNA	27-jan-1993	ES	7.5	0.0285	UGL	LT		GO
			ENDRNK	27-jan-1993	ES	7.5	0.0285	UGL	ND	R	GO
			ESFSO4	27-jan-1993	ES	7.5	0.0786	UGL	LT		GO
			GCLDAN	27-jan-1993	ES	7.5	0.075	UGL	ND	R	GO
			HPCL	27-jan-1993	ES	7.5	0.0423	UGL	LT		GO
			HPCLE	27-jan-1993	ES	7.5	0.0245	UGL	LT		GO
			ISODR	27-jan-1993	ES	7.5	0.0562	UGL	LT		GO
			LIN	27-jan-1993	ES	7.5	0.0507	UGL	LT		GO
			MEXCLR	27-jan-1993	ES	7.5	0.057	UGL	LT		GO
			PPDDD	27-jan-1993	ES	7.5	0.0233	UGL	LT		GO
			PPDDE	27-jan-1993	ES	7.5	0.027	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			PPDDT	27-jan-1993	ES	7.5	0.034	UGL	LT		GO
			TXPHEN	27-jan-1993	ES	7.5	1.35	UGL	LT		GO
WELL	MW016	UM18	124TCB	27-jan-1993	ES	7.5	1.8	UGL	LT		GO
			12DCLB	27-jan-1993	ES	7.5	1.7	UGL	LT		GO
			12DPH	27-jan-1993	ES	7.5	2	UGL	ND	R	GO
			13DCLB	27-jan-1993	ES	7.5	1.7	UGL	LT		GO
			14DCLB	27-jan-1993	ES	7.5	1.7	UGL	LT		GO
			245TCP	27-jan-1993	ES	7.5	5.2	UGL	LT		GO
			246TCP	27-jan-1993	ES	7.5	4.2	UGL	LT		GO
			24DCLP	27-jan-1993	ES	7.5	2.9	UGL	LT		GO
			24DMPN	27-jan-1993	ES	7.5	5.8	UGL	LT		GO
			24DNP	27-jan-1993	ES	7.5	21	UGL	LT		GO
			24DNT	27-jan-1993	ES	7.5	4.5	UGL	LT		GO
			26DNT	27-jan-1993	ES	7.5	0.79	UGL	LT		GO
			2CLP	27-jan-1993	ES	7.5	0.99	UGL	LT		GO
			2CNAP	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			2MNAP	27-jan-1993	ES	7.5	1.7	UGL	LT		GO
			2MP	27-jan-1993	ES	7.5	3.9	UGL	LT		GO
			2NANIL	27-jan-1993	ES	7.5	4.3	UGL	LT		GO
			2NP	27-jan-1993	ES	7.5	3.7	UGL	LT		GO
			33DCBD	27-jan-1993	ES	7.5	12	UGL	LT		GO
			3NANIL	27-jan-1993	ES	7.5	4.9	UGL	LT		GO
			46DN2C	27-jan-1993	ES	7.5	17	UGL	LT		GO
			4BRPPE	27-jan-1993	ES	7.5	4.2	UGL	LT		GO
			4CANIL	27-jan-1993	ES	7.5	7.3	UGL	LT		GO
			4CL3C	27-jan-1993	ES	7.5	4	UGL	LT		GO
			4CLPPE	27-jan-1993	ES	7.5	5.1	UGL	LT		GO
			4MP	27-jan-1993	ES	7.5	0.52	UGL	LT		GO
			4NANIL	27-jan-1993	ES	7.5	5.2	UGL	LT		GO
			4NP	27-jan-1993	ES	7.5	12	UGL	LT		GO
			ABHC	27-jan-1993	ES	7.5	4	UGL	ND	R	GO
			ACLDAN	27-jan-1993	ES	7.5	5.1	UGL	ND	R	GO
WELL	MW016	UM18	AENSLF	27-jan-1993	ES	7.5	9.2	UGL	ND	R	GO
			ALDRN	27-jan-1993	ES	7.5	4.7	UGL	ND	R	GO
			ANAPNE	27-jan-1993	ES	7.5	1.7	UGL	LT		GO
			ANAPYL	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			ANTRC	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			B2CEXM	27-jan-1993	ES	7.5	1.5	UGL	LT		GO
			B2CIPE	27-jan-1993	ES	7.5	5.3	UGL	LT		GO
			B2CLEE	27-jan-1993	ES	7.5	1.9	UGL	LT		GO
			B2EHP	27-jan-1993	ES	7.5	4.8	UGL	LT		GO
			BAANTR	27-jan-1993	ES	7.5	1.6	UGL	LT		GO
			BAPYR	27-jan-1993	ES	7.5	4.7	UGL	LT		GO
			BBFANT	27-jan-1993	ES	7.5	5.4	UGL	LT		GO
			BBHC	27-jan-1993	ES	7.5	4	UGL	ND	R	GO
			BBZP	27-jan-1993	ES	7.5	3.4	UGL	LT		GO
			BENSLF	27-jan-1993	ES	7.5	9.2	UGL	ND	R	GO
			BENZID	27-jan-1993	ES	7.5	10	UGL	ND	R	GO
			BENZOA	27-jan-1993	ES	7.5	13	UGL	LT		GO
			BGHIPY	27-jan-1993	ES	7.5	6.1	UGL	LT		GO
			BKFANT	27-jan-1993	ES	7.5	0.87	UGL	LT		GO
			BZALC	27-jan-1993	ES	7.5	0.72	UGL	LT		GO
			CARBAZ	27-jan-1993	ES	7.5	1.5	UGL	ND	R	GO
			CHRY	27-jan-1993	ES	7.5	2.4	UGL	LT		GO
			CL6BZ	27-jan-1993	ES	7.5	1.6	UGL	LT		GO
			CL6CP	27-jan-1993	ES	7.5	8.6	UGL	LT		GO
			CL6ET	27-jan-1993	ES	7.5	1.5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			DBAHA	27-jan-1993	ES	7.5	6.5	UGL	LT		GO
			DBHC	27-jan-1993	ES	7.5	4	UGL	ND	R	GO
			DBZFUR	27-jan-1993	ES	7.5	1.7	UGL	LT		GO
			DEP	27-jan-1993	ES	7.5	2	UGL	LT		GO
			DLDRN	27-jan-1993	ES	7.5	4.7	UGL	ND	R	GO
			DMP	27-jan-1993	ES	7.5	1.5	UGL	LT		GO
			DNBP	27-jan-1993	ES	7.5	3.7	UGL	LT		GO
			DNOP	27-jan-1993	ES	7.5	15	UGL	LT		GO
			ENDRN	27-jan-1993	ES	7.5	7.6	UGL	ND	R	GO
			ENDRNA	27-jan-1993	ES	7.5	8	UGL	ND	R	GO
			ENDRNK	27-jan-1993	ES	7.5	8	UGL	ND	R	GO
			ESFSO4	27-jan-1993	ES	7.5	9.2	UGL	ND	R	GO
			FANT	27-jan-1993	ES	7.5	3.3	UGL	LT		GO
			FLRENE	27-jan-1993	ES	7.5	3.7	UGL	LT		GO
			GCLDAN	27-jan-1993	ES	7.5	5.1	UGL	ND	R	GO
			HCBD	27-jan-1993	ES	7.5	3.4	UGL	LT		GO
			HPCL	27-jan-1993	ES	7.5	2	UGL	ND	R	GO
			HPCLE	27-jan-1993	ES	7.5	5	UGL	ND	R	GO
			ICDPYR	27-jan-1993	ES	7.5	8.6	UGL	LT		GO
			ISOPHR	27-jan-1993	ES	7.5	4.8	UGL	LT		GO
			LIN	27-jan-1993	ES	7.5	4	UGL	ND	R	GO
			MEXCLR	27-jan-1993	ES	7.5	5.1	UGL	ND	R	GO
			NAP	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			NB	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			NNDMEA	27-jan-1993	ES	7.5	2	UGL	ND	R	GO
			NNDNPA	27-jan-1993	ES	7.5	4.4	UGL	LT		GO
			NNDPA	27-jan-1993	ES	7.5	3	UGL	LT		GO
WELL	MW016	UM18	PCB016	27-jan-1993	ES	7.5	21	UGL	ND	R	GO
			PCB221	27-jan-1993	ES	7.5	21	UGL	ND	R	GO
			PCB232	27-jan-1993	ES	7.5	21	UGL	ND	R	GO
			PCB242	27-jan-1993	ES	7.5	30	UGL	ND	R	GO
			PCB248	27-jan-1993	ES	7.5	30	UGL	ND	R	GO
			PCB254	27-jan-1993	ES	7.5	36	UGL	ND	R	GO
			PCB260	27-jan-1993	ES	7.5	36	UGL	ND	R	GO
			PCP	27-jan-1993	ES	7.5	18	UGL	LT		GO
			PHANTR	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			PHENOL	27-jan-1993	ES	7.5	9.2	UGL	LT		GO
			PPDDD	27-jan-1993	ES	7.5	4	UGL	ND	R	GO
			PPDDE	27-jan-1993	ES	7.5	4.7	UGL	ND	R	GO
			PPDDT	27-jan-1993	ES	7.5	9.2	UGL	ND	R	GO
			PYR	27-jan-1993	ES	7.5	2.8	UGL	LT		GO
			TXPHEN	27-jan-1993	ES	7.5	36	UGL	ND	R	GO
			UNK530	27-jan-1993	ES	7.5	10	UGL		S	GO
			UNK558	27-jan-1993	ES	7.5	50	UGL		S	GO
			UNK561	27-jan-1993	ES	7.5	10	UGL		S	GO
WELL	MW016	UM20	111TCE	27-jan-1993	ES	7.5	19	UGL			GO
			112TCE	27-jan-1993	ES	7.5	1.2	UGL	LT		GO
			11DCE	27-jan-1993	ES	7.5	1.5	UGL			GO
			11DCLE	27-jan-1993	ES	7.5	130	UGL			GO
			12DCE	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			12DCLE	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			12DCLP	27-jan-1993	ES	7.5	8.5	UGL			GO
			2CLEVE	27-jan-1993	ES	7.5	0.71	UGL	LT		GO
			ACET	27-jan-1993	ES	7.5	13	UGL	LT		GO
			ACROLN	27-jan-1993	ES	7.5	100	UGL	ND	R	GO
			ACRYLO	27-jan-1993	ES	7.5	100	UGL	ND	R	GO
			BRDCLM	27-jan-1993	ES	7.5	0.59	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			C13DCP	27-jan-1993	ES	7.5	0.58	UGL	LT		GO
			C2AVE	27-jan-1993	ES	7.5	8.3	UGL	LT		GO
			C2H3CL	27-jan-1993	ES	7.5	2.6	UGL	LT		GO
			C2H5CL	27-jan-1993	ES	7.5	1.9	UGL	LT		GO
			C6H6	27-jan-1993	ES	7.5	0.97	UGL			GO
			CCL3F	27-jan-1993	ES	7.5	1.4	UGL	LT		GO
			CCL4	27-jan-1993	ES	7.5	0.58	UGL	LT		GO
			CH2CL2	27-jan-1993	ES	7.5	2.3	UGL	LT		GO
			CH3BR	27-jan-1993	ES	7.5	5.8	UGL	LT		GO
			CH3CL	27-jan-1993	ES	7.5	3.2	UGL	LT		GO
			CHBR3	27-jan-1993	ES	7.5	2.6	UGL	LT		GO
			CHCL3	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			CL2BZ	27-jan-1993	ES	7.5	10	UGL	ND	R	GO
			CLC6H5	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			CS2	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			DBRCLM	27-jan-1993	ES	7.5	0.67	UGL	LT		GO
			ETC6H5	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			MEC6H5	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			MEK	27-jan-1993	ES	7.5	6.4	UGL	LT		GO
			MIBK	27-jan-1993	ES	7.5	3	UGL	LT		GO
			MNBK	27-jan-1993	ES	7.5	3.6	UGL	LT		GO
WELL	MW016	UM20	STYR	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			T13DCP	27-jan-1993	ES	7.5	0.7	UGL	LT		GO
			TCLEA	27-jan-1993	ES	7.5	0.51	UGL	LT		GO
			TCLEE	27-jan-1993	ES	7.5	1.6	UGL	LT		GO
			TRCLE	27-jan-1993	ES	7.5	0.5	UGL	LT		GO
			UNK034	27-jan-1993	ES	7.5	20	UGL		S	GO
			XYLEN	27-jan-1993	ES	7.5	0.84	UGL	LT		GO
WELL	MW018	00	OILGR	27-jan-1993	ES	8.4	182	UGL	LT		GO
			TPHC	27-jan-1993	ES	8.4	182	UGL	LT		GO
WELL	MW018	SB01	HG	27-jan-1993	ES	8.4	0.243	UGL	LT		GO
WELL	MW018	SD09	TL	27-jan-1993	ES	8.4	6.99	UGL	LT		GO
WELL	MW018	SD20	PB	27-jan-1993	ES	8.4	1.26	UGL	LT		GO
WELL	MW018	SD21	SE	27-jan-1993	ES	8.4	3.02	UGL	LT		GO
WELL	MW018	SD22	AS	27-jan-1993	ES	8.4	2.54	UGL	LT		GO
WELL	MW018	SS10	AG	27-jan-1993	ES	8.4	4.6	UGL	LT		GO
			AL	27-jan-1993	ES	8.4	141	UGL	LT		GO
			BA	27-jan-1993	ES	8.4	113	UGL			GO
			BE	27-jan-1993	ES	8.4	5	UGL	LT		GO
			CA	27-jan-1993	ES	8.4	130000	UGL			GO
			CD	27-jan-1993	ES	8.4	4.01	UGL	LT		GO
			CO	27-jan-1993	ES	8.4	25	UGL	LT		GO
			CR	27-jan-1993	ES	8.4	6.02	UGL	LT		GO
			CU	27-jan-1993	ES	8.4	8.09	UGL	LT		GO
			FE	27-jan-1993	ES	8.4	38.8	UGL	LT		GO
			K	27-jan-1993	ES	8.4	5240	UGL			GO
			MG	27-jan-1993	ES	8.4	87400	UGL			GO
			MN	27-jan-1993	ES	8.4	3.16	UGL			GO
			NA	27-jan-1993	ES	8.4	115000	UGL			GO
			NI	27-jan-1993	ES	8.4	34.3	UGL	LT		GO
			SB	27-jan-1993	ES	8.4	38	UGL	LT		GO
			V	27-jan-1993	ES	8.4	12.9	UGL			GO
			ZN	27-jan-1993	ES	8.4	21.1	UGL	LT		GO
WELL	MW018	TF18	CYN	27-jan-1993	ES	8.4	2.5	UGL	LT		GO
WELL	MW018	TF22	NIT	27-jan-1993	ES	8.4	88	UGL			GO
WELL	MW018	TT10	CL	27-jan-1993	ES	8.4	410000	UGL			GO
			SO4	27-jan-1993	ES	8.4	172000	UGL			GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
WELL	MW018	UH02	PCB016	27-jan-1993	ES	8.4	0.16	UGL	LT		GO
			PCB221	27-jan-1993	ES	8.4	0.16	UGL	ND	R	GO
			PCB232	27-jan-1993	ES	8.4	0.16	UGL	ND	R	GO
			PCB242	27-jan-1993	ES	8.4	0.19	UGL	ND	R	GO
			PCB248	27-jan-1993	ES	8.4	0.19	UGL	ND	R	GO
WELL	MW018	UH02	PCB254	27-jan-1993	ES	8.4	0.19	UGL	ND	R	GO
			PCB260	27-jan-1993	ES	8.4	0.19	UGL	LT		GO
WELL	MW018	UH13	ABHC	27-jan-1993	ES	8.4	0.0385	UGL	LT		GO
			ACLDAN	27-jan-1993	ES	8.4	0.075	UGL	ND	R	GO
			AENSLF	27-jan-1993	ES	8.4	0.023	UGL	LT		GO
			ALDRN	27-jan-1993	ES	8.4	0.0918	UGL	LT		GO
			BBHC	27-jan-1993	ES	8.4	0.024	UGL	LT		GO
			BENSLF	27-jan-1993	ES	8.4	0.023	UGL	LT		GO
			DBHC	27-jan-1993	ES	8.4	0.0293	UGL	LT		GO
			DLDRN	27-jan-1993	ES	8.4	0.024	UGL	LT		GO
			ENDRN	27-jan-1993	ES	8.4	0.0238	UGL	LT		GO
			ENDRNA	27-jan-1993	ES	8.4	0.0285	UGL	LT		GO
			ENDRNK	27-jan-1993	ES	8.4	0.0285	UGL	ND	R	GO
			ESFSO4	27-jan-1993	ES	8.4	0.0786	UGL	LT		GO
			GCLDAN	27-jan-1993	ES	8.4	0.075	UGL	ND	R	GO
			HPCL	27-jan-1993	ES	8.4	0.0423	UGL	LT		GO
			HPCLE	27-jan-1993	ES	8.4	0.0245	UGL	LT		GO
			ISODR	27-jan-1993	ES	8.4	0.0562	UGL	LT		GO
			LIN	27-jan-1993	ES	8.4	0.0507	UGL	LT		GO
			MEXCLR	27-jan-1993	ES	8.4	0.057	UGL	LT		GO
			PPDDD	27-jan-1993	ES	8.4	0.0233	UGL	LT		GO
			PPDDE	27-jan-1993	ES	8.4	0.027	UGL	LT		GO
			PPDDT	27-jan-1993	ES	8.4	0.034	UGL	LT		GO
			TXPHEN	27-jan-1993	ES	8.4	1.35	UGL	LT		GO
WELL	MW018	UM18	124TCB	27-jan-1993	ES	8.4	1.8	UGL	LT		GO
			12DCLB	27-jan-1993	ES	8.4	1.7	UGL	LT		GO
			12DPH	27-jan-1993	ES	8.4	2	UGL	ND	R	GO
			13DCLB	27-jan-1993	ES	8.4	1.7	UGL	LT		GO
			14DCLB	27-jan-1993	ES	8.4	1.7	UGL	LT		GO
			245TCP	27-jan-1993	ES	8.4	5.2	UGL	LT		GO
			246TCP	27-jan-1993	ES	8.4	4.2	UGL	LT		GO
			24DCLP	27-jan-1993	ES	8.4	2.9	UGL	LT		GO
			24DMPN	27-jan-1993	ES	8.4	5.8	UGL	LT		GO
			24DNP	27-jan-1993	ES	8.4	21	UGL	LT		GO
			24DNT	27-jan-1993	ES	8.4	4.5	UGL	LT		GO
			26DNT	27-jan-1993	ES	8.4	0.79	UGL	LT		GO
			2CLP	27-jan-1993	ES	8.4	0.99	UGL	LT		GO
			2CNAP	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			2MNAP	27-jan-1993	ES	8.4	1.7	UGL	LT		GO
			2MP	27-jan-1993	ES	8.4	3.9	UGL	LT		GO
			2NANIL	27-jan-1993	ES	8.4	4.3	UGL	LT		GO
			2NP	27-jan-1993	ES	8.4	3.7	UGL	LT		GO
			33DCBD	27-jan-1993	ES	8.4	12	UGL	LT		GO
			3NANIL	27-jan-1993	ES	8.4	4.9	UGL	LT		GO
			46DN2C	27-jan-1993	ES	8.4	17	UGL	LT		GO
			4BRPPE	27-jan-1993	ES	8.4	4.2	UGL	LT		GO
			4CANIL	27-jan-1993	ES	8.4	7.3	UGL	LT		GO
			4CL3C	27-jan-1993	ES	8.4	4	UGL	LT		GO
			4CLPPE	27-jan-1993	ES	8.4	5.1	UGL	LT		GO
			4MP	27-jan-1993	ES	8.4	0.52	UGL	LT		GO
WELL	MW018	UM18	4NANIL	27-jan-1993	ES	8.4	5.2	UGL	LT		GO
			4NP	27-jan-1993	ES	8.4	12	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			ABHC	27-jan-1993	ES	8.4	4	UGL	ND	R	GO
			ACLDAN	27-jan-1993	ES	8.4	5.1	UGL	ND	R	GO
			AENSLF	27-jan-1993	ES	8.4	9.2	UGL	ND	R	GO
			ALDRN	27-jan-1993	ES	8.4	4.7	UGL	ND	R	GO
			ANAPNE	27-jan-1993	ES	8.4	1.7	UGL	LT		GO
			ANAPYL	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			ANTRC	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			B2CEXM	27-jan-1993	ES	8.4	1.5	UGL	LT		GO
			B2CIPE	27-jan-1993	ES	8.4	5.3	UGL	LT		GO
			B2CLEE	27-jan-1993	ES	8.4	1.9	UGL	LT		GO
			B2EHP	27-jan-1993	ES	8.4	7.9	UGL			GO
			BAANTR	27-jan-1993	ES	8.4	1.6	UGL	LT		GO
			BAPYR	27-jan-1993	ES	8.4	4.7	UGL	LT		GO
			BBFANT	27-jan-1993	ES	8.4	5.4	UGL	LT		GO
			BBHC	27-jan-1993	ES	8.4	4	UGL	ND	R	GO
			BBZP	27-jan-1993	ES	8.4	3.4	UGL	LT		GO
			BENSLF	27-jan-1993	ES	8.4	9.2	UGL	ND	R	GO
			BENZID	27-jan-1993	ES	8.4	10	UGL	ND	R	GO
			BENZOA	27-jan-1993	ES	8.4	13	UGL	LT		GO
			BGHIPY	27-jan-1993	ES	8.4	6.1	UGL	LT		GO
			BKFANT	27-jan-1993	ES	8.4	0.87	UGL	LT		GO
			BZALC	27-jan-1993	ES	8.4	0.72	UGL	LT		GO
			CARBAZ	27-jan-1993	ES	8.4	1.5	UGL	ND	R	GO
			CHRY	27-jan-1993	ES	8.4	2.4	UGL	LT		GO
			CL6BZ	27-jan-1993	ES	8.4	1.6	UGL	LT		GO
			CL6CP	27-jan-1993	ES	8.4	8.6	UGL	LT		GO
			CL6ET	27-jan-1993	ES	8.4	1.5	UGL	LT		GO
			DBAHA	27-jan-1993	ES	8.4	6.5	UGL	LT		GO
			DBHC	27-jan-1993	ES	8.4	4	UGL	ND	R	GO
			DBZFUR	27-jan-1993	ES	8.4	1.7	UGL	LT		GO
			DEP	27-jan-1993	ES	8.4	2	UGL	LT		GO
			DLDRN	27-jan-1993	ES	8.4	4.7	UGL	ND	R	GO
			DMP	27-jan-1993	ES	8.4	1.5	UGL	LT		GO
			DNBP	27-jan-1993	ES	8.4	3.7	UGL	LT		GO
			DNOP	27-jan-1993	ES	8.4	15	UGL	LT		GO
			ENDRN	27-jan-1993	ES	8.4	7.6	UGL	ND	R	GO
			ENDRNA	27-jan-1993	ES	8.4	8	UGL	ND	R	GO
			ENDRNK	27-jan-1993	ES	8.4	8	UGL	ND	R	GO
			ESFSO4	27-jan-1993	ES	8.4	9.2	UGL	ND	R	GO
			FANT	27-jan-1993	ES	8.4	3.3	UGL	LT		GO
			FLRENE	27-jan-1993	ES	8.4	3.7	UGL	LT		GO
			GCLDAN	27-jan-1993	ES	8.4	5.1	UGL	ND	R	GO
			HCBD	27-jan-1993	ES	8.4	3.4	UGL	LT		GO
			HPCL	27-jan-1993	ES	8.4	2	UGL	ND	R	GO
			HPCLE	27-jan-1993	ES	8.4	5	UGL	ND	R	GO
			ICDPYR	27-jan-1993	ES	8.4	8.6	UGL	LT		GO
			ISOPHR	27-jan-1993	ES	8.4	4.8	UGL	LT		GO
			LIN	27-jan-1993	ES	8.4	4	UGL	ND	R	GO
			MEXCLR	27-jan-1993	ES	8.4	5.1	UGL	ND	R	GO
			NAP	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
WELL	MW018	UM18	NB	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			NNDMEA	27-jan-1993	ES	8.4	2	UGL	ND	R	GO
			NNDNPA	27-jan-1993	ES	8.4	4.4	UGL	LT		GO
			NNDPA	27-jan-1993	ES	8.4	3	UGL	LT		GO
			PCB016	27-jan-1993	ES	8.4	21	UGL	ND	R	GO
			PCB221	27-jan-1993	ES	8.4	21	UGL	ND	R	GO
			PCB232	27-jan-1993	ES	8.4	21	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-jan-93 to 01-mar-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method Code	Test Name	Sample Date	Lab	Depth	Value	Unit Meas.	Meas Bool.	Flag Code	Prog.
			PCB242	27-jan-1993	ES	8.4	30	UGL	ND	R	GO
			PCB248	27-jan-1993	ES	8.4	30	UGL	ND	R	GO
			PCB254	27-jan-1993	ES	8.4	36	UGL	ND	R	GO
			PCB260	27-jan-1993	ES	8.4	36	UGL	ND	R	GO
			PCP	27-jan-1993	ES	8.4	18	UGL	LT		GO
			PHANTR	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			PHENOL	27-jan-1993	ES	8.4	9.2	UGL	LT		GO
			PPDDD	27-jan-1993	ES	8.4	4	UGL	ND	R	GO
			PPDDE	27-jan-1993	ES	8.4	4.7	UGL	ND	R	GO
			PPDDT	27-jan-1993	ES	8.4	9.2	UGL	ND	R	GO
			PYR	27-jan-1993	ES	8.4	2.8	UGL	LT		GO
			TXPHEN	27-jan-1993	ES	8.4	36	UGL	ND	R	GO
WELL	MW018	UM20	111TCE	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			112TCE	27-jan-1993	ES	8.4	1.2	UGL	LT		GO
			11DCE	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			11DCLE	27-jan-1993	ES	8.4	0.68	UGL	LT		GO
			12DCE	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			12DCLE	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			12DCLP	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			2CLEVE	27-jan-1993	ES	8.4	0.71	UGL	LT		GO
			ACET	27-jan-1993	ES	8.4	13	UGL	LT		GO
			ACROLN	27-jan-1993	ES	8.4	100	UGL	ND	R	GO
			ACRYLO	27-jan-1993	ES	8.4	100	UGL	ND	R	GO
			BRDCLM	27-jan-1993	ES	8.4	0.59	UGL	LT		GO
			C13DCP	27-jan-1993	ES	8.4	0.58	UGL	LT		GO
			C2AVE	27-jan-1993	ES	8.4	8.3	UGL	LT		GO
			C2H3CL	27-jan-1993	ES	8.4	2.6	UGL	LT		GO
			C2H5CL	27-jan-1993	ES	8.4	1.9	UGL	LT		GO
			C6H6	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			CCL3F	27-jan-1993	ES	8.4	1.4	UGL	LT		GO
			CCL4	27-jan-1993	ES	8.4	0.64	UGL			GO
			CH2CL2	27-jan-1993	ES	8.4	2.3	UGL	LT		GO
			CH3BR	27-jan-1993	ES	8.4	5.8	UGL	LT		GO
			CH3CL	27-jan-1993	ES	8.4	3.2	UGL	LT		GO
			CHBR3	27-jan-1993	ES	8.4	2.6	UGL	LT		GO
			CHCL3	27-jan-1993	ES	8.4	0.79	UGL			GO
			CL2BZ	27-jan-1993	ES	8.4	10	UGL	ND	R	GO
			CLC6H5	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			CS2	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			DBRCLM	27-jan-1993	ES	8.4	0.67	UGL	LT		GO
			ETC6H5	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			MEC6H5	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			MEK	27-jan-1993	ES	8.4	6.4	UGL	LT		GO
			MIBK	27-jan-1993	ES	8.4	3	UGL	LT		GO
WELL	MW018	UM20	MNBK	27-jan-1993	ES	8.4	3.6	UGL	LT		GO
			OMCTSX	27-jan-1993	ES	8.4	10	UGL		S	GO
			STYR	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			T13DCP	27-jan-1993	ES	8.4	0.7	UGL	LT		GO
			TCLEA	27-jan-1993	ES	8.4	0.51	UGL	LT		GO
			TCLEE	27-jan-1993	ES	8.4	1.6	UGL	LT		GO
			TRCLE	27-jan-1993	ES	8.4	0.5	UGL	LT		GO
			XYLEN	27-jan-1993	ES	8.4	0.84	UGL	LT		GO

** End of Report - 1363 Records Found **

ROUND 2 LETTER REPORT

ASEA BROWN BOVERI

9305049.WP/CR410
7027-01

May 12, 1993

Mr. James Zeisloft
USATHAMA
CETHA-IR-A
Building 4480
Aberdeen Proving Grounds, MD 21010-5401

Subject: Letter Report - Groundwater Sampling, Round 2, Detroit Arsenal, Warren, Michigan

Dear Mr. Zeisloft:

The purpose of this letter is to document round 2 groundwater sampling of seven monitoring wells on the Detroit Arsenal property in Warren, Michigan (Figure 1). This program was conducted by ABB Environmental Services, Inc., (ABB-ES) under the direction of the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA).

Groundwater samples were collected from MW001, MW002, MW004, MW010, MW014, MW016 and MW018; locations are shown on Figure 2. After removal of each well cap, ambient air and air in the mouth of the well were measured with a Draeger pump equipped with a 0.5/a vinyl chloride tube. No organic vapors or vinyl chloride were detected at any well. Prior to groundwater sampling, the static water level was measured from the top of the well casing (Table 1) and the amount of water present in each well was calculated.

A Keck SP-81 submersible pump with teflon tubing was used to purge each well. Wells were purged at a rate of approximately 1.3 gallons per minute until five casing volumes had been removed or the well went dry (Table 2). Except for MW001, each well was allowed to recover overnight after purging. Due to access difficulties at MW001, Dennis Bowser approved purging the well dry and allowing it to recharge sufficiently to permit sampling on the same day. Prior to sampling the rest of the wells on the day following purging (MW014 and MW010 required two days to recover), water levels were recorded and a minimum of one casing volume was purged. During well evacuation, groundwater temperature, pH, and specific conductance were measured a minimum of five times.

Groundwater samples to be analyzed for semivolatile compounds, pesticides/PCB's, nitrate/nitrite, sulfate, cyanide, oil and grease, and total recoverable petroleum hydrocarbons were collected with the submersible pump. Groundwater samples for dissolved metals analysis were also collected with the submersible pump; at each well a new .45-micron disposable filter was installed in the discharge line before these sample containers were filled. Groundwater samples to be analyzed for volatile organic compounds (VOCs) were collected with a new disposable polyethylene bailer. Sample bottles were triple-rinsed with ASTM Type II water followed by a triple rinse with well water prior to sample collection. After processing, preserving, and labeling, all samples were kept on ice in coolers until delivery to the laboratory via overnight carrier.

ABB Environmental Services of Michigan, Inc.

39255 Country Club Drive B-25
P. O. Box 2055
Farmington Hills, Michigan 48333-2055

Telephone:
(313) 489-8040

Fax:
(313) 489-8048

ASEA BROWN BOVERI

One trip blank to be analyzed for VOCs was collected during mobilization. The trip blank consisted of the ASTM Type II water used for decontamination. It was collected and preserved in the same manner that field samples were to be handled and then placed on ice in a cooler dedicated to VOC samples. One rinsate blank using ASTM Type II water was collected after decontaminating the pump and prior to purging MW014. Copies of the groundwater sampling records are attached.

Groundwater sampling was completed on April 28, 1993.

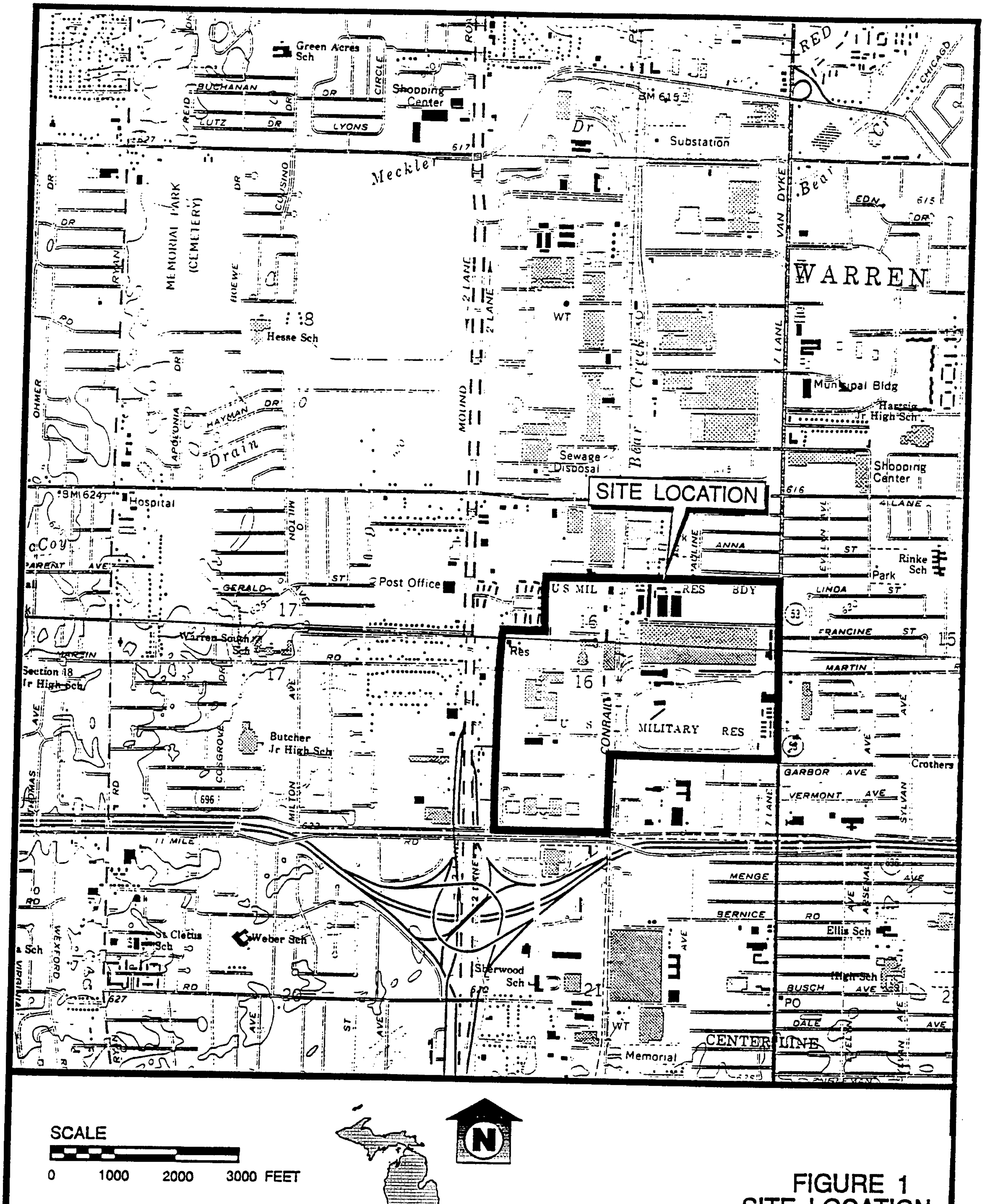
Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

Greta D. Reade

Greta D. Reade
Project Manager

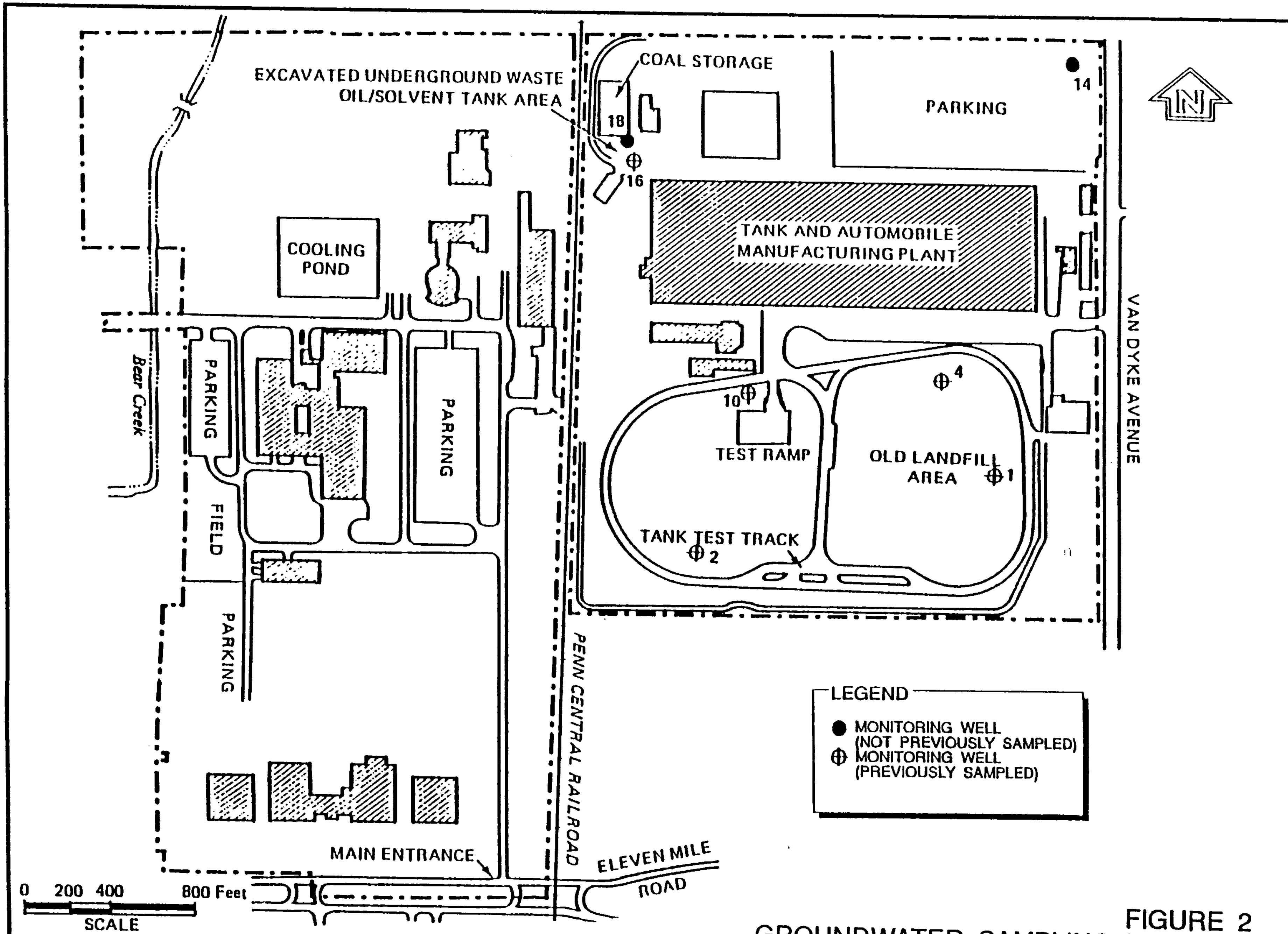
GDR/tay



TAKEN FROM THE HIGHLAND PARK AND WARREN MICHIGAN, USGS, 7.5 SERIES QUADRANGLE.

FIGURE 1
SITE LOCATION
DETROIT ARSENAL

ABB ENVIRONMENTAL SERVICES, INC.



SOURCE: U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT, 1987,
AS PRESENTED IN DAMES & MOORE, FINAL REPORT, 1990 QUARTERLY
MONITORING PROGRAM, DECEMBER 20, 1990.

FIGURE 2
GROUNDWATER SAMPLING LOCATIONS
DETROIT ARSENAL

ABB ENVIRONMENTAL SERVICES, INC.

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS
APRIL 26, 1993

DETROIT ARSENAL
WARREN, MICHIGAN

WELL	TOP OF RISER ELEVATION (FEET)	DEPTH TO WATER (FEET)	GROUNDWATER ELEVATION (FEET)
MW001	627.76	3.38	624.38
MW002	625.84	3.74	622.10
MW004	627.03	8.00	619.03
MW010	624.79	5.58	619.21
MW014	621.36	7.08	614.28
MW016	622.58	7.49	615.09
MW018	623.39	7.62	615.77

NOTE: Measurements were taken with a Solinst water level meter.

TABLE 2
GROUNDWATER SAMPLING DATA – ROUND 2
DETROIT ARSENAL
WARREN, MICHIGAN

WELL	VOLUME PURGED BY PREVIOUS CONSULTANT (GALLONS) 9/84	VOLUME PURGED BY ABB–ES (ROUND 1) (GALLONS) 1/93	VOLUME PURGED BY ABB–ES (GALLONS)			TOTAL VOLUME PURGED (GALLONS)	SAMPLE DATE	SAMPLE TIME	SAMPLE DESIGNATION
			4/26/93	4/27/93	4/28/93				
Rinsate Blank	NA	NA	NA	NA	NA	NA	4/26/93	14.30	RBLK–1 DAW2*8
Trip Blank	NA	NA	NA	NA	NA	NA	4/26/93	09:00	TBLK–1 DAW2*9
MW001	80	122	0	120*	0	120	4/27/93	14:50	DAW2*1
MW002	53	90	0	60*	10	70	4/28/93	11:30	DAW2*2
MW004	48	83	0	60*	10	70	4/28/93	15:30	DAW2*3
MW010	56	98	65*	**	15	80	4/28/93	14:40	DAW2*4
MW014	93	84	57*	**	30	87	4/28/93	13:15	DAW2*5
MW016	27	36	20*	10	0	30	4/27/93	16:10	DAW2*6
MW018	38	79	45*	30*	0	75	4/27/93	17:20	DAW2*7

NOTES:
NA = Not applicable.
* Well purged dry on this date.
** Insufficient recovery to sample on this date.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) ROUND-2   JOB NO. 7027-03 (TKB)   DATE: 4-26-93 Monday

SAMPLE LOCATION RBLK-1 or equip. blank   LAB NUMBER DAW2*8

~~WATER LEVEL/WELL DATA~~ SEE PAGE 1

MEASURED WELL DEPTH ____ FT   [ ] TOP OF WELL   [ ] TOP OF CASING   [ ] ____   WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ____   WATER DEPTH ____ FT   MONITORING: FID Ø OVA Ø   AMBIENT AIR Ø PPM   WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH ____ FT   [ ] TOP OF WELL   [ ] TOP OF CASING   [ ] ____   WELL MATERIAL: [X] PVC [ ] SS [ ] ____   PROTECTIVE CASING STICK-UP (FROM GROUND) ____ FT

DRAEGER TUBE 0.5/a
Well Mouth Ø
Ambient Air Ø

~~PURGE DATA~~

HEIGHT OF WATER COLUMN ____ FT   See page 1   [ ] .16 GAL/FT (2 IN)   [ ] .65 GAL/FT (4 IN)   [ ] 1.5 GAL/FT (6 IN)   [ ] ____ GAL/FT (____ IN)   X ____ CASING VOLUMES = GALLONS TO BE PURGED   PURGE TIME START ____ END ____   SAMPLE TIME START ____ END ____

PURGE VOLUME	@ ____ GAL	@ ____ GAL	@ ____ GAL	@ ____ GAL	@ ____ GAL
TEMP, DEG C					
pH, UNITS					
SPECIFIC CONDUCTIVITY, umhos/cm					

SAMPLE Time 1430

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[ ]	[X] SUBMERSIBLE PUMP	KECK
[ ]	[X] BAILER (~~PVC/SS/TEFLON~~) Disposable - VOCs	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[ ] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ____	

DECON FLUIDS USED: [ ] ETHYL ALCOHOL [ ] DEIONIZED WATER [ ] HNO3/D.I. WATER [ ] POTABLE WATER [ ] TSP SOLUTION [ ] NONE [X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED: [ ] ELECTRIC COND. PROBE [ ] FLOAT ACTIVATED [ ] KECK INTERFACE PROBE [X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1

NOTES: Pump and ~~is~~ disposable bailer were deconed with ASTM TYPE 2 water

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW2*8-NF	Diss Metals	SS10/SDxx/SB01	1L	POLY	Yes	HNO_3 <2
DAW2*8-VP	VOC	UM20	2x40ml	A-GLASS/vial	NO	HCL <2
DAW2*8-MS	SVOC	UM18	2x1L	A-GLASS	NO	—
DAW2*8-EC	PEST./PCB	UH13/UH02	2x1L	A-GLASS	NO	—
DAW2*8-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*8-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW2*8-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW2*8-O	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
DAW2*8-O	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

Diss. Metals was Field Filtered through Keck pump w/ in line .45 micron Filter.

SIGNATURE ____

SIGNATURE/FUNCTION: Kelly A. Mish GEOLOGIST

90303.WP REVISED 3/90   ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: Detroit Arsenal -Round 2 USATHAMA JOB NO. 7027-03 (TKB) DATE: 4-26-93 Monday

SAMPLE LOCATION MW-014 LAB NUMBER DAW2* 5-

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH ____ FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ____

WATER DEPTH 7.08 FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH 33.86 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

PROTECTIVE CASING STICK-UP (FROM GROUND) ____ FT

0.5/a
Monitoring - Draeger Tube
Well Mouth Ø ppm
Ambient Air Ø ppm

PURGE DATA

HEIGHT OF WATER COLUMN 26.78 FT

[ ] .16 GAL/FT (2 IN)
[X] .65 GAL/FT (4 IN)
[ ] 1.5 GAL/FT (6 IN)
[ ] ____ GAL/FT (____ IN)

x 5 CASING VOLUMES = 87 GALLONS TO BE PURGED

PURGE TIME START 1453 END 1601

SAMPLE TIME START ~~X~~ END ~~X~~

PURGE VOLUME	@ 35 GAL	@ 40 GAL	@ 45 GAL	@ 50 GAL	@ 57 GAL
TEMP, DEG C	11.3	11.2	11.4°	11.8	11.7
pH, UNITS	7.03	6.95	6.94	-6.92	7.1
SPECIFIC CONDUCTIVITY, umhos/cm	1490	1400	2,100	2000	1900
卌卌 I	clear	cloudy light-brown	turbid brown	turbid brown	turbid-brown Dry

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP, Disposable	Keck
[ ]	[ ] BAILER ~~(PVC/SS/TEFLON)~~	VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (Metals)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ____	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED —

NOTES: Water Clear at beginning of purge

. Well dry at 57 gallons

SIGNATURE Kelly L Mish

SIGNATURE/FUNCTION: Geologist

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) JOB NO. 7027-03 (TKB) DATE: 4-28-93 wed

SAMPLE LOCATION MW-014 LAB NUMBER DAW2*5

WATER LEVEL/WELL DATA SEE PAGE 1

MEASURED WELL DEPTH ____ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ____

WATER DEPTH 7.08 FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

DRAEGER TUBE 0.5/a
Well Mouth Ø
Ambient Air Ø

HISTORICAL WELL DEPTH 33.86 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

PROTECTIVE CASING STICK-UP (FROM GROUND) ____ FT

PURGE DATA
HEIGHT OF WATER COLUMN ____ FT
See page 1

[ ] .16 GAL/FT (2 IN)
[ ] .65 GAL/FT (4 IN)
[ ] 1.5 GAL/FT (6 IN)
[ ] ____ GAL/FT (____ IN)

X ____ CASING VOLUMES = GALLONS TO BE PURGED

PURGE TIME START 1235 END 1315
SAMPLE TIME START 1315 END 1350

PURGE VOLUME	@ 10 GAL	@ 20 GAL	@ 30 GAL	@ ___ GAL	@ ___ GAL
TEMP, DEG C	11.1	11.4	11.3		
pH, UNITS	7.3	7.2	7.2		
SPECIFIC CONDUCTIVITY, umhos/cm	2000	1960	1975		

TOTAL PURGE = 87

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING		EQUIPMENT ID
[ ]	[ ]	PERISTALTIC PUMP	
[ ]	[ ]	SUBMERSIBLE PUMP	KECK
[ ]	[ ]	BAILER (~~PVC/SS/TEFLON~~) Disposable - VOCs	
[ ]	[ ]	PVC/SILICON TUBING	
[ ]	[ ]	TEFLON/SILICON TUBING	
[ ]	[ ]	AIR LIFT	
[ ]	[ ]	WATERRA	
	[ ]	IN-LINE FILTER (METALS)	
	[ ]	PRESS/VAC FILTER	
[ ]	[ ]		

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1
.45 micron in-line

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/ VOLUME pH
DAW2*5-NF	Diss Metals	SS1C/SDXX/SBQ	1L	POLY	Yes	HNO_3 <2
DAW2*5-VP	VOC	UM20	2x40ml	A-GLASS/vial	NO	HCL <2
DAW2*5-HS	SVOC	UM18	2x1L	A-GLASS	NO	—
DAW2*5-EC	PEST./PCB	UH13/UH02	2x1L	A-GLASS	NO	—
DAW2*5-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*5-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW2*5-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW2*5-O	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
*5-O	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

SIGNATURE ____

SIGNATURE/FUNCTION: Kelly [illegible] / GEOL.

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: Detroit Arsenal - Round 2 USATHAMA JOB NO. 7027-03 (TKB) DATE: 4-26-93 Mon.

SAMPLE LOCATION MW-016 LAB NUMBER DAW2*6

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH 17.38 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH 7.49 FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM
0.5/a

HISTORICAL WELL DEPTH 17.8' FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

Monitoring - Draeger-Tube
Well Mouth Ø ppm
Ambient Air Ø ppm

PURGE DATA

HEIGHT OF WATER COLUMN 9.89 FT

[ ] .16 GAL/FT (2 IN)
[X] .65 GAL/FT (4 IN)
[ ] 1.5 GAL/FT (6 IN)
[ ] ____ GAL/FT (____IN)

x 5 CASING VOLUMES = 32.14 GALLONS TO BE PURGED

PURGE TIME START 1625 END 1645

SAMPLE TIME START — END —

PURGE VOLUME	@ 2 GAL	@ 5 GAL	@ 10 GAL	@ 15 GAL	@ 20 GAL
TEMP, DEG C	11.5	10.2	9.9	10.4	10.7
pH, UNITS	7.51	7.16	6.91	-6.88	7.04
SPECIFIC CONDUCTIVITY, umhos/cm	1720	1740	1670	1700	1710
	Water-clear	clear	light Brown	Lt. Brown.	Lt. brown dry

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP Disposable	Keck
[ ]	[ ] BAILER ~~(PVC/SS/TEFLON)~~	VOC
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (Metals)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED —

NOTES: water clear at beginning of purge

SIGNATURE Kelly 2 mih / GEOLOGIST

SIGNATURE/FUNCTION: ______

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) JOB NO. 7027-03 (TKB) DATE: 4-27-93 Tue

SAMPLE LOCATION MW-016 LAB NUMBER DAW2*6

WATER LEVEL/WELL DATA SEE PAGE 1

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH 7.94 FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

DRAEGER TUBE 0.5/a
Well Mouth Ø
Ambient Air 0

HISTORICAL WELL DEPTH 17.8' FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

HEIGHT OF WATER COLUMN ______ FT
See page 1

[ ] .16 GAL/FT (2 IN)
[ ] .65 GAL/FT (4 IN)
[ ] 1.5 GAL/FT (6 IN)
[ ] ____ GAL/FT (____IN)

X ____ CASING VOLUMES = GALLONS TO BE PURGED

PURGE TIME START 1600 END 1610
SAMPLE TIME START 1610* END 1630

PURGE VOLUME	@ 5 GAL	@ 10 GAL	@ __ GAL	@ __ GAL	@ __ GAL
TEMP, DEG C	11.1	11.2			
pH, UNITS	7.8	7.5			
SPECIFIC CONDUCTIVITY, umhos/cm	1720	1710			

Total Purge Volume = 30 gal.

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[ ]	[X] SUBMERSIBLE PUMP	KECK
[ ]	[X] BAILER (~~PVC/SS/TEFLON~~) Disposable - VOCs	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[ ] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1
0.45 micron in-line

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW2*6-NF	Diss. Metals	SS1C/SDXX/SB01	1L	POLY	Yes	HNO_3 <2
DAW2*6-VP	VOC	UM20	2x40ml	A-GLASS/Vial	NO	HCL <2
DAW2*6-MS	SVOC	UM18	2x1L	A-GLASS	NO	—
DAW2*6-EC	PEST./PCB	UH13/UH02	2x1L	A-GLASS	NO	—
DAW2*6-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*6-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW2*6-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
[illegible]2*6-0	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
*6-0	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

SIGNATURE Kelly [illegible] / Geologist

SIGNATURE/FUNCTION: ______

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: Detroit Arsenal - Round 2 USATHAMA   JOB NO. 7027-03 (TKB)   DATE: 4-26-93

MPLE LOCATION: MW-018   LAB NUMBER: DAW2*7

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH 33.34 FT — [X] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH 7.62 FT

MONITORING: FID OVA — AMBIENT AIR Ø PPM — WELL MOUTH Ø PPM

0.5/ca

Monitoring - Draeger Tube — Well Mouth Ø ppm — Ambient Air Ø ppm

HISTORICAL WELL DEPTH 33.6 FT — [X] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

HEIGHT OF WATER COLUMN 25.72 FT — [ ] .16 GAL/FT (2 IN) [X] .65 GAL/FT (4 IN) [ ] 1.5 GAL/FT (6 IN) [ ] ____ GAL/FT (____ IN) × 5 CASING VOLUMES = 83.59 GALLONS TO BE PURGED

PURGE TIME START 1700 END 1735

SAMPLE TIME START ~~X~~ END

PURGE VOLUME	@ 5 GAL	@ 10 GAL	@ 15 GAL	@ 20 GAL	@ 45 GAL
TEMP, DEG C	12.7°	12.6	11.5	11.7	13.1
pH, UNITS	7.28	7.25	7.30	7.26	7.03
SPECIFIC CONDUCTIVITY, umhos/cm	1000	1200	1180	1200	1220
~~IIII~~ III	clear	clear	lt. brown	lt. brown	v. turbid Brown

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP, Disposable	Keck
[ ]	[ ] BAILER ~~(PVC/SS/TEFLON)~~	VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (Metals)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED: [ ] ETHYL ALCOHOL [ ] DEIONIZED WATER [ ] HNO3/D.I. WATER [ ] POTABLE WATER [ ] TSP SOLUTION [ ] NONE [X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED: [ ] ELECTRIC COND. PROBE [ ] FLOAT ACTIVATED [ ] KECK INTERFACE PROBE [X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED -0-

NOTES: Water v. turbid - Brown at 35 gallons

SIGNATURE Kelly A. Mich / Geologist

SIGNATURE/FUNCTION: ______

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) JOB NO. 7027-03 (TKB) DATE: 4-27-93

ROUND 2 TUE

SAMPLE LOCATION MW-018 LAB NUMBER DAW2*7

WATER LEVEL/WELL DATA SEE PAGE 1

MEASURED WELL DEPTH ____ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ____

WATER DEPTH ____ FT

MONITORING: FID OVA AMBIENT AIR Ø PPM WELL MOUTH Ø PPM

DRAEGER TUBE 0.5/a Well Mouth Ø Ambient Air Ø

HISTORICAL WELL DEPTH 33.6 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

PROTECTIVE CASING STICK-UP (FROM GROUND) ____ FT

PURGE DATA

HEIGHT OF WATER COLUMN ____ FT
See page 1

[ ] .16 GAL/FT (2 IN) [ ] .65 GAL/FT (4 IN) [ ] 1.5 GAL/FT (6 IN) [ ] ____ GAL/FT (____IN) X ____ CASING VOLUMES = GALLONS TO BE PURGED

PURGE TIME START 1650 END 1720

SAMPLE TIME START 1720 END 1955

Total Purge = 75

PURGE VOLUME	@ 10 GAL	@ 20 GAL	@ 30 GAL	@ ____ GAL	@ ____ GAL
TEMP, DEG C	12.1	12.7	12.9		
pH, UNITS	7.8	7.3	7.4		
SPECIFIC CONDUCTIVITY, umhos/cm	1600	1210	1220		

40

Well went dry while sampling. Had to let well recharge to complete sampling.

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[✓]	[✓] SUBMERSIBLE PUMP	KECK
[ ]	[✓] BAILER (~~PVC/SS/TEFLON~~) Disposable - VOCs	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[✓] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ____	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1
.45 micron in-line

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW2*7-NF	Diss. Metals	SS1C/SDXX/SB01	1L	POLY	Yes	HNO_3 <2
DAW2*7-VP	VOC	UM20	2x40ml	A-GLASS/Vial	NO	HCL <2
DAW2*7-MS	SVOC	UM18	2x1L	A-GLASS	NO	—
DAW2*7-EC	PEST./PCB	UH13/UH02	2x1L	A-GLASS	NO	—
DAW2*7-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*7-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW2*7-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW2*7-O	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
*7-O	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

SIGNATURE ____

SIGNATURE/FUNCTION: [signature] / GEOL

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: Detroit Arsenal - ROUND 2 USATHAMA JOB NO. 7027-03 (TKB) DATE: 4-26-93

SAMPLE LOCATION MW-010 LAB NUMBER DAW2*4

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH 33.88 FT
[X] TOP OF WELL
[ ] TOP OF CASING
[ ] ______

WELL DIAM.
[ ] 2 INCH
[X] 4 INCH
[ ] 6 INCH
[ ] ______

WATER DEPTH 5.58 FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM
0.5/a

HISTORICAL WELL DEPTH 34.3' FT
[X] TOP OF WELL
[ ] TOP OF CASING
[ ] ______

WELL MATERIAL:
[X] PVC
[ ] SS
[ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

Monitoring - Draeger Tube
Well Mouth Ø ppm
Ambient Air Ø ppm

PURGE DATA

HEIGHT OF WATER COLUMN 28.3 FT
[ ] .16 GAL/FT (2 IN)
[X] .65 GAL/FT (4 IN)
[ ] 1.5 GAL/FT (6 IN)
[ ] ______ GAL/FT (______ IN)

x 5 CASING VOLUMES = 91.98 GALLONS TO BE PURGED

PURGE TIME START 1750 END 1830

SAMPLE TIME START — END —

PURGE VOLUME	@ 10 GAL	@ 25 GAL	@ 40 GAL	@ 60 GAL	@ 65 GAL
TEMP, DEG C	9.4°	8.8	9.6°	11.2	11.5
pH, UNITS	7.48	7.41	7.5	6.7	6.9
SPECIFIC CONDUCTIVITY, umhos/cm	3380	2410	3360	3340	3360
卌 卌 |||	Clear	clear	Clear	Turbid lt. brown	Dry at 65 gallons

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP, Disposable	Keck
[ ]	[ ] BAILER ~~(PVC/SS/TEFLON)~~	VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (Metals)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED —

NOTES: Water clear at beginning of purge
water silty at 50 gallons - brown

SIGNATURE Kelly [illegible] / GEOL.

SIGNATURE/FUNCTION: ______

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) ROUND 2 JOB NO. 7027-03 (TKB) DATE: 4-28-93 WGD.

[SA]MPLE LOCATION MW-010 LAB NUMBER DAW2*4

WATER LEVEL/WELL DATA SEE PAGE 1

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH ______ FT

MONITORING: FID OVA AMBIENT AIR Ø PPM WELL MOUTH Ø PPM

DRAEGER TUBE 0.5/a Well Mouth Ø Ambient Air Ø

HISTORICAL WELL DEPTH 34.3 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

HEIGHT OF WATER COLUMN ______ FT (See page 1)

[ ] .16 GAL/FT (2 IN) [ ] .65 GAL/FT (4 IN) [ ] 1.5 GAL/FT (6 IN) [ ] ____ GAL/FT (____ IN) X ____ CASING VOLUMES = GALLONS TO BE PURGED

PURGE TIME START 1420 END 1435

SAMPLE TIME START 1440 END 1505

PURGE VOLUME	@ 10 GAL	@ 15 GAL	@ ___ GAL	@ ___ GAL	@ ___ GAL
TEMP, DEG C	10.9	11.0			
pH, UNITS	7.3	7.1			
SPECIFIC CONDUCTIVITY, umhos/cm	2790	3310			

TOTAL PURGE = 80 gal.

[E]QUIPMENT DOCUMENTATION

[PU]RGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[✓]	[✓] SUBMERSIBLE PUMP	KECK
[ ]	[✓] BAILER (~~PVC/SS/TEFLON~~)	Disposable - VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[✓] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED: [ ] ETHYL ALCOHOL [ ] DEIONIZED WATER [ ] HNO3/D.I. WATER [ ] POTABLE WATER [ ] TSP SOLUTION [ ] NONE [X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED: [ ] ELECTRIC COND. PROBE [ ] FLOAT ACTIVATED [ ] KECK INTERFACE PROBE [X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1 — 0.45 micron in-line

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW2*4-NF	Diss. Metals	SS10/SDxx/SB09	1L	POLY	Yes	HNO_3 <2
DAW2*4-VP	VOC	UM20	2x40ml	A-GLASS/Vial	NO	HCL <2
DAW2*4-MS	SVOC	UM18	2x1L	A-GLASS	NO	—
DAW2*4-EC	PEST./PCB	UH13/UH02	2x1L	A-GLASS	NO	—
DAW2*4-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*4-C	SULFATE	TT10	1L	PLASTIC	NO	
DAW2*4-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
[DAW]2*4-O	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
[DAW2]*4-O	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

SIGNATURE ______

SIGNATURE/FUNCTION: Kelly A. Nash / GEOL.

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: Detroit Arsenal USATHAMA JOB NO. 7027-03 (TKB) DATE: Tue 4-27-93

SAMPLE LOCATION MW-001 LAB NUMBER DAW2 #1

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH 33.88 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ______
3.38
30.50

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH 3.38 FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH 34.2 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

0.5/a
Monitoring - Draeger Tube
Well Mouth Ø ppm
Ambient Air Ø ppm

PURGE DATA

HEIGHT OF WATER COLUMN 30.5 FT
[ ] .16 GAL/FT (2 IN)
[X] .65 GAL/FT (4 IN) 19.83 x 5 CASING VOLUMES = 99.13 GALLONS TO BE PURGED
[ ] 1.5 GAL/FT (6 IN)
[ ] ____ GAL/FT (____ IN)

PURGE TIME START 1120 END 1245
SAMPLE TIME START — END —

PURGE VOLUME	@ 10 GAL	@ 30 GAL	@ 45 GAL	@ 60 GAL	@ 100 GAL
TEMP, DEG C	10.0°	8.4	8.8	9.9	10.4
pH, UNITS	6.72	6.7	6.45	6.46	6.33
SPECIFIC CONDUCTIVITY, umhos/cm	2060	2180	1990	1910	1960
~~THI~~	Brown Turbid	Brown Turbid	Brown Turbid	Brown Turbid	Brown, Turbid Dry

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP Disposable	Keck
[ ]	[ ] BAILER ~~(PVC/SS/TEFLON)~~	VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (Metals)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED ____

NOTES: Water brown & silty at beginning
Well dry at 100 gallons, let ~~re~~ well recharge and sample

Location access problems - Mud
Hand carried Keck to well w/ Battery

SIGNATURE Kelly A. Mir / GEOL.
SIGNATURE/FUNCTION: ______

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) JOB NO. 7027-03 (TKB) DATE: Tue 4-27-93

[SA]MPLE LOCATION MW-001 LAB NUMBER DAW2*1

WATER LEVEL/WELL DATA SEE PAGE 1

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH ______ FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

DRAEGER TUBE 0.5/a
Well Mouth Ø
Ambient Air Ø

HISTORICAL WELL DEPTH 34.2 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

HEIGHT OF WATER COLUMN ______ FT
See page 1

[ ] .16 GAL/FT (2 IN)
[ ] .65 GAL/FT (4 IN) X ____ CASING VOLUMES = GALLONS TO BE PURGED
[ ] 1.5 GAL/FT (6 IN)
[ ] ____ GAL/FT (____ IN)

PURGE TIME START 1435 END 1450

SAMPLE TIME START 1450* END 1530

Total Purge = 120

PURGE VOLUME	@ 10 GAL	@ 20 GAL	@ ____ GAL	@ ____ GAL	@ ____ GAL
TEMP, DEG C	10.4	10.3			
pH, UNITS	6.8	6.5			
SPECIFIC CONDUCTIVITY, umhos/cm	1920	1940			

Purged 20 ~~volumes~~ gallons & sampled. KAR

[E]QUIPMENT DOCUMENTATION

[PU]RGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[ ]	[✓] SUBMERSIBLE PUMP	KECK
[ ]	[✓] BAILER (~~PVC/SS/TEFLON~~) Disposable - VOCs	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[✓] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW2*1-NF	Diss. Metals	SS10/SDxx/SB01	1L	POLY	Yes	HNO_3 <2
DAW2*1-VP	VOC	UM20	2x40ml	A-GLASS/Vial	NO	HCL <2
DAW2*1-MS	SVOC	UM18	2x1L	A-GLASS	NO	—
DAW2*1-EC	PEST./PCB	UH13/UH02	2x1L	A-GLASS.	NO	—
DAW2*1-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*1-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW2*1-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
[DAW]2*1-O	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
[DAW2]*1-O	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

SIGNATURE ______

SIGNATURE/FUNCTION: Kelly 2 Mish / GEOL

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: Detroit Arsenal -ROUND 2 USATHAMA JOB NO. 7027-03 (TKB) DATE: 4-27-93 Tue

SAMPLE LOCATION MW-004 LAB NUMBER DAW2*3

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH 33 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ____

WATER DEPTH 8.0' FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

HISTORICAL WELL DEPTH 34 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

PROTECTIVE CASING STICK-UP (FROM GROUND) ____ FT

0.5/a
Monitoring - Draeger Tube
Well Mouth Ø ppm
Ambient Air Ø ppm

PURGE DATA

HEIGHT OF WATER COLUMN 25 FT

[ ] .16 GAL/FT (2 IN) [X] .65 GAL/FT (4 IN) [ ] 1.5 GAL/FT (6 IN) [ ] ____ GAL/FT (____ IN)

x 5 CASING VOLUMES = 81.25 GALLONS TO BE PURGED

PURGE TIME START 0850 END 0935

SAMPLE TIME START — END —

PURGE VOLUME	@ 10 GAL	@ 30 GAL	@ 40 GAL	@ 50 GAL	@ 60 GAL
TEMP, DEG C	9.6	8.4	9.2	10.1	10.8
pH, UNITS	6.94	6.76	6.74	6.71	6.75
SPECIFIC CONDUCTIVITY, umhos/cm	NR	1460	1470	1520	1240
	clear	clear	slightly turbid lt. brown	turbid brown	turbid brown well dry

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP, Disposable	Keck
[ ]	[ ] BAILER ~~(PVC/SS/TEFLON)~~	VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (Metals)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ____	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED —

NOTES: Water clear at beginning of purge

SIGNATURE Kelly Zmich / GEOL
SIGNATURE/FUNCTION: ____

90303.WP
REVISED 3/90

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) JOB NO. 7027-03 (TKB) DATE: 4-28-93

ROUND 2 Wed.

SAMPLE LOCATION MW-004 LAB NUMBER DAW2*3

WATER LEVEL/WELL DATA SEE PAGE 1

MEASURED WELL DEPTH ________ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ________

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ________

WATER DEPTH ________ FT

MONITORING: FID OVA

AMBIENT AIR 0 PPM

WELL MOUTH 0 PPM

DRAEGER TUBE 0.5/a

Well Mouth 0

Ambient Air 0

HISTORICAL WELL DEPTH 34 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ________

WELL MATERIAL: [X] PVC [ ] SS [ ] ________

PROTECTIVE CASING STICK-UP (FROM GROUND) ________ FT

PURGE DATA

HEIGHT OF WATER COLUMN ________ FT

See page 1

[ ] .16 GAL/FT (2 IN) [ ] .65 GAL/FT (4 IN) [ ] 1.5 GAL/FT (6 IN) [ ] ____ GAL/FT (____ IN) X ____ CASING VOLUMES = GALLONS TO BE PURGED

PURGE TIME START 1515 END 1525

SAMPLE TIME START 1530 END 1600

PURGE VOLUME	@ 5 GAL	@ 10 GAL	@ ___ GAL	@ ___ GAL	@ ___ GAL
TEMP, DEG C	10.9	10.7			
pH, UNITS	7.1	6.8			
SPECIFIC CONDUCTIVITY, umhos/cm	1320	1295			

TOTAL PURGE = 70 gall.

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[ ]	[✓] SUBMERSIBLE PUMP	KECK
[ ]	[✓] BAILER (~~PVC/SS/TEFLON~~) Disposable - VOCs	
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[✓] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ________	

DECON FLUIDS USED

[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED

[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1

0.45 micron in-line

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME pH
DAW2*3-NF	Diss. Metals	SS10/SDxx/SB01	1L	POLY	Yes	HNO_3 <2
DAW2*3-VP	VOC	UM20	2 x 40ml	A-GLASS/Vial	NO	HCL <2
DAW2*3-MS	SVOC	UM18	2 x 1L	A-GLASS	NO	—
DAW2*3-EC	PEST./PCB	UH13/UH02	2 x 1L	A-GLASS	NO	—
DAW2*3-S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*3-C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW2*3-B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
DAW2*3-O	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
*3-O	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

SIGNATURE ________

SIGNATURE/FUNCTION: Kelly 2 Mich / GEOL

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: Detroit Arsenal - Round 2 USATHAMA JOB NO. 7027-03 (TKB) DATE: Tue 4-27-93

SAMPLE LOCATION ~~MW-004~~ KLM MW-002 LAB NUMBER DAW2*2

WATER LEVEL/WELL DATA

MEASURED WELL DEPTH 32.84 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH 3.74 FT

MONITORING: FID OVA
AMBIENT AIR Ø PPM
WELL MOUTH Ø PPM

0.5/a
Monitoring - Draeger Tube
Well Mouth Ø ppm
Ambient Air Ø ppm

HISTORICAL WELL DEPTH 33.7 FT [X] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

HEIGHT OF WATER COLUMN 29.1 FT

[ ] .16 GAL/FT (2 IN)
[X] .65 GAL/FT (4 IN)
[ ] 1.5 GAL/FT (6 IN)
[ ] ____ GAL/FT (____ IN)

X 5 CASING VOLUMES = 94.58 GALLONS TO BE PURGED

PURGE TIME START 0955 END 1100

SAMPLE TIME START Ø END Ø

PURGE VOLUME	@ 10 GAL	@ 25 GAL	@ 40 GAL	@ 60 GAL	@ ____ GAL
TEMP, DEG C	8.3	7.2°	7.9	9.7	
pH, UNITS	7.2	7.38	7.23	7.03	
SPECIFIC CONDUCTIVITY, umhos/cm	1130	1060	1060	1360	
	clear	clear	v. light brown	light Brown	Dry at 63 gallons

~~IIII IIII~~ II

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[X]	[X] SUBMERSIBLE PUMP Disposable	Keck
[ ]	[ ] BAILER ~~(PVC/SS/TEFLON)~~	VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (Metals)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED
[ ] ETHYL ALCOHOL
[ ] DEIONIZED WATER
[ ] HNO3/D.I. WATER
[ ] POTABLE WATER
[ ] TSP SOLUTION
[ ] NONE
[X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED
[ ] ELECTRIC COND. PROBE
[ ] FLOAT ACTIVATED
[ ] KECK INTERFACE PROBE
[X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED —

NOTES:

SIGNATURE Kelly a. Mich / GEOL

SIGNATURE/FUNCTION: ______

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

GROUNDWATER SAMPLE RECORD

SITE: DETROIT ARSENAL (USATHAMA) ROUND 2 JOB NO. 7027-03 (TKB) DATE: 4-28-93 Wed

SAMPLE LOCATION MW-002 LAB NUMBER DAW2*2

WATER LEVEL/WELL DATA SEE PAGE 1

MEASURED WELL DEPTH ______ FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL DIAM. [ ] 2 INCH [X] 4 INCH [ ] 6 INCH [ ] ______

WATER DEPTH ______ FT

MONITORING: FID OVA AMBIENT AIR Ø PPM WELL MOUTH Ø PPM

DRAEGER TUBE 0.5/a Well Mouth Ø Ambient Air Ø

HISTORICAL WELL DEPTH 33.7 FT [ ] TOP OF WELL [ ] TOP OF CASING [ ] ______

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PURGE DATA

HEIGHT OF WATER COLUMN ______ FT (See page 1)

[ ] .16 GAL/FT (2 IN) [ ] .65 GAL/FT (4 IN) [ ] 1.5 GAL/FT (6 IN) [ ] ______ GAL/FT (______ IN) X ______ CASING VOLUMES = GALLONS TO BE PURGED

PURGE TIME START 1120 END 1130

SAMPLE TIME START 1130 END 1215

PURGE VOLUME	@ 5 GAL	@ 10 GAL	@ ___ GAL	@ ___ GAL	@ ___ GAL
TEMP, DEG C	9.7	9.5			
pH, UNITS	7.26	7.21			
SPECIFIC CONDUCTIVITY, umhos/cm	1380	1370			

Total Purge = 83 gal.

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	EQUIPMENT ID
[ ]	[ ] PERISTALTIC PUMP	
[ ]	[X] SUBMERSIBLE PUMP	KECK
[ ]	[X] BAILER (~~PVC/SS/TEFLON~~)	Disposable - VOCs
[ ]	[ ] PVC/SILICON TUBING	
[ ]	[ ] TEFLON/SILICON TUBING	
[ ]	[ ] AIR LIFT	
[ ]	[ ] WATERRA	
	[X] IN-LINE FILTER (METALS)	
	[ ] PRESS/VAC FILTER	
[ ]	[ ] ______	

DECON FLUIDS USED: [ ] ETHYL ALCOHOL [ ] DEIONIZED WATER [ ] HNO3/D.I. WATER [ ] POTABLE WATER [ ] TSP SOLUTION [ ] NONE [X] ASTM TYPE II WATER

WATER LEVEL EQUIP. USED: [ ] ELECTRIC COND. PROBE [ ] FLOAT ACTIVATED [ ] KECK INTERFACE PROBE [X] OTHER SOLINST

NUMBER OF FILTER PAPERS USED 1

SAMPLES COLLECTED

BOTTLE ID	ANALYSIS REQUESTED	METHOD NUMBER	VOLUME	JAR TYPE	FILTERED	PRESERVATIVE/VOLUME PH
DAW2*2 -NF	Diss.Metals	SS10/SDxx/SB09	1L	POLY	Yes	HNO_3 <2
DAW2*2 -VP	VOC	UM20	2 x 40ml	A-GLASS/Vial	NO	HCL <2
DAW2*2 -MS	SVOC	UM18	2 x 1L	A-GLASS	NO	—
DAW2*2 -EC	PEST./PCB	UH13/UH02	2 x 1L	A-GLASS	NO	—
DAW2*2 -S	NITRATE/NITRITE	TF22	1L	PLASTIC	NO	H_2SO_4 <2
DAW2*2 -C	SULFATE	TT10	1L	PLASTIC	NO	—
DAW2*2 -B	CYANIDE	TF18	1L	POLY	NO	NaOH >12
...2*2 -O	OIL + GREASE	EPA 413.2	1L	W.M. Amber	NO	H_2SO_4 <2
*2-O	T.R.P.H.	EPA 418.1	1L	W.M. Amber	NO	H_2SO_4 <2

SIGNATURE

SIGNATURE/FUNCTION: [signature] / GEOL.

90303.WP
REVISED 3/90

ABB ENVIRONMENTAL SERVICES, INC.

ROUND 2 ANALYTICAL DATA

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
WELL	MW001	00	OILGR	27-apr-1993	ES	3.38	170	UGL	LT		GO
			TPHC	27-apr-1993	ES	3.38	170	UGL	LT		GO
WELL	MW001	SB01	HG	27-apr-1993	ES	3.38	0.243	UGL	LT		GO
WELL	MW001	SD09	TL	27-apr-1993	ES	3.38	6.99	UGL	LT		GO
WELL	MW001	SD20	PB	27-apr-1993	ES	3.38	1.26	UGL	LT		GO
WELL	MW001	SD21	SE	27-apr-1993	ES	3.38	3.02	UGL	LT		GO
WELL	MW001	SD22	AS	27-apr-1993	ES	3.38	2.54	UGL	LT		GO
WELL	MW001	SS10	AG	27-apr-1993	ES	3.38	4.6	UGL	LT		GO
			AL	27-apr-1993	ES	3.38	141	UGL	LT		GO
			BA	27-apr-1993	ES	3.38	94.4	UGL			GO
			BE	27-apr-1993	ES	3.38	5	UGL	LT		GO
			CA	27-apr-1993	ES	3.38	278000	UGL			GO
			CD	27-apr-1993	ES	3.38	4.01	UGL	LT		GO
			CO	27-apr-1993	ES	3.38	25	UGL	LT		GO
			CR	27-apr-1993	ES	3.38	6.02	UGL	LT		GO
			CU	27-apr-1993	ES	3.38	8.09	UGL	LT		GO
			FE	27-apr-1993	ES	3.38	1170	UGL			GO
			K	27-apr-1993	ES	3.38	2550	UGL			GO
			MG	27-apr-1993	ES	3.38	105000	UGL			GO
			MN	27-apr-1993	ES	3.38	917	UGL			GO
			NA	27-apr-1993	ES	3.38	83900	UGL			GO
			NI	27-apr-1993	ES	3.38	34.3	UGL	LT		GO
			SB	27-apr-1993	ES	3.38	38	UGL	LT		GO
			V	27-apr-1993	ES	3.38	11	UGL	LT		GO
			ZN	27-apr-1993	ES	3.38	21.1	UGL	LT		GO
WELL	MW001	TF18	CYN	27-apr-1993	ES	3.38	2.5	UGL	LT		GO
WELL	MW001	TF22	NIT	27-apr-1993	ES	3.38	21.3	UGL			GO
WELL	MW001	TT10	CL	27-apr-1993	ES	3.38	260000	UGL			GO
			SO4	27-apr-1993	ES	3.38	300000	UGL			GO
WELL	MW001	UH02	PCB016	27-apr-1993	ES	3.38	0.16	UGL	LT		GO
			PCB221	27-apr-1993	ES	3.38	0.16	UGL	ND	R	GO
			PCB232	27-apr-1993	ES	3.38	0.16	UGL	ND	R	GO
			PCB242	27-apr-1993	ES	3.38	0.19	UGL	ND	R	GO
			PCB248	27-apr-1993	ES	3.38	0.19	UGL	ND	R	GO
			PCB254	27-apr-1993	ES	3.38	0.19	UGL	ND	R	GO
			PCB260	27-apr-1993	ES	3.38	0.19	UGL	LT		GO
WELL	MW001	UH13	ABHC	27-apr-1993	ES	3.38	0.0385	UGL	LT		GO
WELL	MW001	UH13	ACLDAN	27-apr-1993	ES	3.38	0.075	UGL	ND	R	GO
			AENSLF	27-apr-1993	ES	3.38	0.023	UGL	LT		GO
			ALDRN	27-apr-1993	ES	3.38	0.0918	UGL	LT		GO
			BBHC	27-apr-1993	ES	3.38	0.024	UGL	LT		GO
			BENSLF	27-apr-1993	ES	3.38	0.023	UGL	LT		GO
			DBHC	27-apr-1993	ES	3.38	0.0293	UGL	LT		GO
			DLDRN	27-apr-1993	ES	3.38	0.024	UGL	LT		GO
			ENDRN	27-apr-1993	ES	3.38	0.0238	UGL	LT		GO
			ENDRNA	27-apr-1993	ES	3.38	0.0285	UGL	LT		GO
			ENDRNK	27-apr-1993	ES	3.38	0.0285	UGL	ND	R	GO
			ESFSO4	27-apr-1993	ES	3.38	0.0786	UGL	LT		GO
			GCLDAN	27-apr-1993	ES	3.38	0.075	UGL	ND	R	GO
			HPCL	27-apr-1993	ES	3.38	0.0423	UGL	LT		GO
			HPCLE	27-apr-1993	ES	3.38	0.0245	UGL	LT		GO
			ISODR	27-apr-1993	ES	3.38	0.0562	UGL	LT		GO
			LIN	27-apr-1993	ES	3.38	0.0507	UGL	LT		GO
			MEXCLR	27-apr-1993	ES	3.38	0.057	UGL	LT		GO
			PPDDD	27-apr-1993	ES	3.38	0.0233	UGL	LT		GO
			PPDDE	27-apr-1993	ES	3.38	0.027	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			PPDDT	27-apr-1993	ES	3.38	0.034	UGL	LT		GO
			TXPHEN	27-apr-1993	ES	3.38	1.35	UGL	LT		GO
WELL	MW001	UM18	124TCB	27-apr-1993	ES	3.38	1.8	UGL	LT		GO
			12DCLB	27-apr-1993	ES	3.38	1.7	UGL	LT		GO
			12DPH	27-apr-1993	ES	3.38	2	UGL	ND	R	GO
			13DCLB	27-apr-1993	ES	3.38	1.7	UGL	LT		GO
			14DCLB	27-apr-1993	ES	3.38	1.7	UGL	LT		GO
			245TCP	27-apr-1993	ES	3.38	5.2	UGL	LT		GO
			246TCP	27-apr-1993	ES	3.38	4.2	UGL	LT		GO
			24DCLP	27-apr-1993	ES	3.38	2.9	UGL	LT		GO
			24DMPN	27-apr-1993	ES	3.38	5.8	UGL	LT		GO
			24DNP	27-apr-1993	ES	3.38	21	UGL	LT		GO
			24DNT	27-apr-1993	ES	3.38	4.5	UGL	LT		GO
			26DNT	27-apr-1993	ES	3.38	0.79	UGL	LT		GO
			2CLP	27-apr-1993	ES	3.38	0.99	UGL	LT		GO
			2CNAP	27-apr-1993	ES	3.38	0.5	UGL	LT		GO
			2MNAP	27-apr-1993	ES	3.38	1.7	UGL	LT		GO
			2MP	27-apr-1993	ES	3.38	3.9	UGL	LT		GO
			2NANIL	27-apr-1993	ES	3.38	4.3	UGL	LT		GO
			2NP	27-apr-1993	ES	3.38	3.7	UGL	LT		GO
			33DCBD	27-apr-1993	ES	3.38	12	UGL	LT		GO
			3NANIL	27-apr-1993	ES	3.38	4.9	UGL	LT		GO
			46DN2C	27-apr-1993	ES	3.38	17	UGL	LT		GO
			4BRPPE	27-apr-1993	ES	3.38	4.2	UGL	LT		GO
			4CANIL	27-apr-1993	ES	3.38	7.3	UGL	LT		GO
			4CL3C	27-apr-1993	ES	3.38	4	UGL	LT		GO
			4CLPPE	27-apr-1993	ES	3.38	5.1	UGL	LT		GO
			4MP	27-apr-1993	ES	3.38	0.52	UGL	LT		GO
			4NANIL	27-apr-1993	ES	3.38	5.2	UGL	LT		GO
			4NP	27-apr-1993	ES	3.38	12	UGL	LT		GO
			ABHC	27-apr-1993	ES	3.38	4	UGL	ND	R	GO
			ACLDAN	27-apr-1993	ES	3.38	5.1	UGL	ND	R	GO
WELL	MW001	UM18	AENSLF	27-apr-1993	ES	3.38	9.2	UGL	ND	R	GO
			ALDRN	27-apr-1993	ES	3.38	4.7	UGL	ND	R	GO
			ANAPNE	27-apr-1993	ES	3.38	1.7	UGL	LT		GO
			ANAPYL	27-apr-1993	ES	3.38	0.5	UGL	LT		GO
			ANTRC	27-apr-1993	ES	3.38	0.5	UGL	LT		GO
			B2CEXM	27-apr-1993	ES	3.38	1.5	UGL	LT		GO
			B2CIPE	27-apr-1993	ES	3.38	5.3	UGL	LT		GO
			B2CLEE	27-apr-1993	ES	3.38	1.9	UGL	LT		GO
			B2EHP	27-apr-1993	ES	3.38	4.8	UGL	LT		GO
			BAANTR	27-apr-1993	ES	3.38	1.6	UGL	LT		GO
			BAPYR	27-apr-1993	ES	3.38	4.7	UGL	LT		GO
			BBFANT	27-apr-1993	ES	3.38	5.4	UGL	LT		GO
			BBHC	27-apr-1993	ES	3.38	4	UGL	ND	R	GO
			BBZP	27-apr-1993	ES	3.38	3.4	UGL	LT		GO
			BENSLF	27-apr-1993	ES	3.38	9.2	UGL	ND	R	GO
			BENZID	27-apr-1993	ES	3.38	10	UGL	ND	R	GO
			BENZOA	27-apr-1993	ES	3.38	13	UGL	LT		GO
			BGHIPY	27-apr-1993	ES	3.38	6.1	UGL	LT		GO
			BKFANT	27-apr-1993	ES	3.38	0.87	UGL	LT		GO
			BZALC	27-apr-1993	ES	3.38	0.72	UGL	LT		GO
			CARBAZ	27-apr-1993	ES	3.38	0.5	UGL	ND	R	GO
			CHRY	27-apr-1993	ES	3.38	2.4	UGL	LT		GO
			CL6BZ	27-apr-1993	ES	3.38	1.6	UGL	LT		GO
			CL6CP	27-apr-1993	ES	3.38	8.6	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			CL6ET	27-apr-1993	ES	3.38	1.5	UGL	LT		GO
			DBAHA	27-apr-1993	ES	3.38	6.5	UGL	LT		GO
			DBHC	27-apr-1993	ES	3.38	4	UGL	ND	R	GO
			DBZFUR	27-apr-1993	ES	3.38	1.7	UGL	LT		GO
			DEP	27-apr-1993	ES	3.38	2	UGL	LT		GO
			DLDRN	27-apr-1993	ES	3.38	4.7	UGL	ND	R	GO
			DMP	27-apr-1993	ES	3.38	1.5	UGL	LT		GO
			DNBP	27-apr-1993	ES	3.38	3.7	UGL	LT		GO
			DNOP	27-apr-1993	ES	3.38	15	UGL	LT		GO
			ENDRN	27-apr-1993	ES	3.38	7.6	UGL	ND	R	GO
			ENDRNA	27-apr-1993	ES	3.38	8	UGL	ND	R	GO
			ENDRNK	27-apr-1993	ES	3.38	8	UGL	ND	R	GO
			ESFSO4	27-apr-1993	ES	3.38	9.2	UGL	ND	R	GO
			FANT	27-apr-1993	ES	3.38	3.3	UGL	LT		GO
			FLRENE	27-apr-1993	ES	3.38	3.7	UGL	LT		GO
			GCLDAN	27-apr-1993	ES	3.38	5.1	UGL	ND	R	GO
			HCBD	27-apr-1993	ES	3.38	3.4	UGL	LT		GO
			HPCL	27-apr-1993	ES	3.38	2	UGL	ND	R	GO
			HPCLE	27-apr-1993	ES	3.38	5	UGL	ND	R	GO
			ICDPYR	27-apr-1993	ES	3.38	8.6	UGL	LT		GO
			ISOPHR	27-apr-1993	ES	3.38	4.8	UGL	LT		GO
			LIN	27-apr-1993	ES	3.38	4	UGL	ND	R	GO
			MEXCLR	27-apr-1993	ES	3.38	5.1	UGL	ND	R	GO
			NAP	27-apr-1993	ES	3.38	0.5	UGL	LT		GO
			NB	27-apr-1993	ES	3.38	0.5	UGL	LT		GO
			NNDMEA	27-apr-1993	ES	3.38	2	UGL	ND	R	GO
			NNDNPA	27-apr-1993	ES	3.38	4.4	UGL	LT		GO
			NNDPA	27-apr-1993	ES	3.38	3	UGL	LT		GO
WELL	MW001	UM18	PCB016	27-apr-1993	ES	3.38	21	UGL	ND	R	GO
			PCB221	27-apr-1993	ES	3.38	21	UGL	ND	R	GO
			PCB232	27-apr-1993	ES	3.38	21	UGL	ND	R	GO
			PCB242	27-apr-1993	ES	3.38	30	UGL	ND	R	GO
			PCB248	27-apr-1993	ES	3.38	30	UGL	ND	R	GO
			PCB254	27-apr-1993	ES	3.38	36	UGL	ND	R	GO
			PCB260	27-apr-1993	ES	3.38	36	UGL	ND	R	GO
			PCP	27-apr-1993	ES	3.38	18	UGL	LT		GO
			PHANTR	27-apr-1993	ES	3.38	0.5	UGL	LT		GO
			PHENOL	27-apr-1993	ES	3.38	9.2	UGL	LT		GO
			PPDDD	27-apr-1993	ES	3.38	4	UGL	ND	R	GO
			PPDDE	27-apr-1993	ES	3.38	4.7	UGL	ND	R	GO
			PPDDT	27-apr-1993	ES	3.38	9.2	UGL	ND	R	GO
			PYR	27-apr-1993	ES	3.38	2.8	UGL	LT		GO
			TXPHEN	27-apr-1993	ES	3.38	36	UGL	ND	R	GO
WELL	MW001	UM20	111TCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			112TCE	27-apr-1993	ES	0	1.2	UGL	LT		GO
			11DCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			11DCLE	27-apr-1993	ES	0	0.68	UGL	LT		GO
			12DCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLP	27-apr-1993	ES	0	0.5	UGL	LT		GO
			2CLEVE	27-apr-1993	ES	0	0.71	UGL	LT		GO
			ACET	27-apr-1993	ES	0	13	UGL	LT		GO
			ACROLN	27-apr-1993	ES	0	100	UGL	ND	R	GO
			ACRYLO	27-apr-1993	ES	0	100	UGL	ND	R	GO
			BRDCLM	27-apr-1993	ES	0	0.59	UGL	LT		GO
			C13DCP	27-apr-1993	ES	0	0.58	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			C2AVE	27-apr-1993	ES	0	8.3	UGL	LT		GO
			C2H3CL	27-apr-1993	ES	0	2.6	UGL	LT		GO
			C2H5CL	27-apr-1993	ES	0	1.9	UGL	LT		GO
			C6H6	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CCL3F	27-apr-1993	ES	0	1.4	UGL	LT		GO
			CCL4	27-apr-1993	ES	0	0.58	UGL	LT		GO
			CH2CL2	27-apr-1993	ES	0	2.3	UGL	LT		GO
			CH3BR	27-apr-1993	ES	0	5.8	UGL	LT		GO
			CH3CL	27-apr-1993	ES	0	3.2	UGL	LT		GO
			CHBR3	27-apr-1993	ES	0	2.6	UGL	LT		GO
			CHCL3	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CL2BZ	27-apr-1993	ES	0	10	UGL	ND	R	GO
			CLC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CS2	27-apr-1993	ES	0	0.5	UGL	LT		GO
			DBRCLM	27-apr-1993	ES	0	0.67	UGL	LT		GO
			ETC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			MEC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			MEK	27-apr-1993	ES	0	6.4	UGL	LT		GO
			MIBK	27-apr-1993	ES	0	3	UGL	LT		GO
			MNBK	27-apr-1993	ES	0	3.6	UGL	LT		GO
			STYR	27-apr-1993	ES	0	0.5	UGL	LT		GO
			T13DCP	27-apr-1993	ES	0	0.7	UGL	LT		GO
			TCLEA	27-apr-1993	ES	0	0.51	UGL	LT		GO
WELL	MW001	UM20	TCLEE	27-apr-1993	ES	0	1.6	UGL	LT		GO
			TRCLE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			XYLEN	27-apr-1993	ES	0	0.84	UGL	LT		GO
WELL	MW002	00	OILGR	28-apr-1993	ES	3.74	170	UGL	LT		GO
			TPHC	28-apr-1993	ES	3.74	170	UGL	LT		GO
WELL	MW002	SB01	HG	28-apr-1993	ES	3.74	0.243	UGL	LT		GO
WELL	MW002	SD09	TL	28-apr-1993	ES	3.74	6.99	UGL	LT		GO
WELL	MW002	SD20	PB	28-apr-1993	ES	3.74	1.26	UGL	LT		GO
WELL	MW002	SD21	SE	28-apr-1993	ES	3.74	3.02	UGL	LT		GO
WELL	MW002	SD22	AS	28-apr-1993	ES	3.74	2.54	UGL	LT		GO
WELL	MW002	SS10	AG	28-apr-1993	ES	3.74	4.6	UGL	LT		GO
			AL	28-apr-1993	ES	3.74	141	UGL	LT		GO
			BA	28-apr-1993	ES	3.74	43.1	UGL			GO
			BE	28-apr-1993	ES	3.74	5	UGL	LT		GO
			CA	28-apr-1993	ES	3.74	185000	UGL			GO
			CD	28-apr-1993	ES	3.74	4.01	UGL	LT		GO
			CO	28-apr-1993	ES	3.74	25	UGL	LT		GO
			CR	28-apr-1993	ES	3.74	6.02	UGL	LT		GO
			CU	28-apr-1993	ES	3.74	8.09	UGL	LT		GO
			FE	28-apr-1993	ES	3.74	111	UGL			GO
			K	28-apr-1993	ES	3.74	9770	UGL			GO
			MG	28-apr-1993	ES	3.74	50500	UGL			GO
			MN	28-apr-1993	ES	3.74	19.5	UGL			GO
			NA	28-apr-1993	ES	3.74	37900	UGL			GO
			NI	28-apr-1993	ES	3.74	34.3	UGL	LT		GO
			SB	28-apr-1993	ES	3.74	38	UGL	LT		GO
			V	28-apr-1993	ES	3.74	11	UGL	LT		GO
			ZN	28-apr-1993	ES	3.74	21.1	UGL	LT		GO
WELL	MW002	TF18	CYN	28-apr-1993	ES	3.74	2.5	UGL	LT		GO
WELL	MW002	TF22	NIT	28-apr-1993	ES	3.74	75.8	UGL			GO
WELL	MW002	TT10	CL	28-apr-1993	ES	3.74	36000	UGL			GO
			SO4	28-apr-1993	ES	3.74	226000	UGL			GO
WELL	MW002	UH02	PCB016	28-apr-1993	ES	3.74	0.16	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			PCB221	28-apr-1993	ES	3.74	0.16	UGL	ND	R	GO
			PCB232	28-apr-1993	ES	3.74	0.16	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	3.74	0.19	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	3.74	0.19	UGL	ND	R	GO
			PCB254	28-apr-1993	ES	3.74	0.19	UGL	ND	R	GO
			PCB260	28-apr-1993	ES	3.74	0.19	UGL	LT		GO
WELL	MW002	UH13	ABHC	28-apr-1993	ES	3.74	0.0385	UGL	LT		GO
WELL	MW002	UH13	ACLDAN	28-apr-1993	ES	3.74	0.075	UGL	ND	R	GO
			AENSLF	28-apr-1993	ES	3.74	0.023	UGL	LT		GO
			ALDRN	28-apr-1993	ES	3.74	0.0918	UGL	LT		GO
			BBHC	28-apr-1993	ES	3.74	0.024	UGL	LT		GO
			BENSLF	28-apr-1993	ES	3.74	0.023	UGL	LT		GO
			DBHC	28-apr-1993	ES	3.74	0.0293	UGL	LT		GO
			DLDRN	28-apr-1993	ES	3.74	0.024	UGL	LT		GO
			ENDRN	28-apr-1993	ES	3.74	0.0238	UGL	LT		GO
			ENDRNA	28-apr-1993	ES	3.74	0.0285	UGL	LT		GO
			ENDRNK	28-apr-1993	ES	3.74	0.0285	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	3.74	0.0786	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	3.74	0.075	UGL	ND	R	GO
			HPCL	28-apr-1993	ES	3.74	0.0423	UGL	LT		GO
			HPCLE	28-apr-1993	ES	3.74	0.0245	UGL	LT		GO
			ISODR	28-apr-1993	ES	3.74	0.0562	UGL	LT		GO
			LIN	28-apr-1993	ES	3.74	0.0507	UGL	LT		GO
			MEXCLR	28-apr-1993	ES	3.74	0.057	UGL	LT		GO
			PPDDD	28-apr-1993	ES	3.74	0.0233	UGL	LT		GO
			PPDDE	28-apr-1993	ES	3.74	0.027	UGL	LT		GO
			PPDDT	28-apr-1993	ES	3.74	0.034	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	3.74	1.35	UGL	LT		GO
WELL	MW002	UM18	124TCB	28-apr-1993	ES	3.74	1.8	UGL	LT		GO
			12DCLB	28-apr-1993	ES	3.74	1.7	UGL	LT		GO
			12DPH	28-apr-1993	ES	3.74	2	UGL	ND	R	GO
			13DCLB	28-apr-1993	ES	3.74	1.7	UGL	LT		GO
			14DCLB	28-apr-1993	ES	3.74	1.7	UGL	LT		GO
			245TCP	28-apr-1993	ES	3.74	5.2	UGL	LT		GO
			246TCP	28-apr-1993	ES	3.74	4.2	UGL	LT		GO
			24DCLP	28-apr-1993	ES	3.74	2.9	UGL	LT		GO
			24DMPN	28-apr-1993	ES	3.74	5.8	UGL	LT		GO
			24DNP	28-apr-1993	ES	3.74	21	UGL	LT		GO
			24DNT	28-apr-1993	ES	3.74	4.5	UGL	LT		GO
			26DNT	28-apr-1993	ES	3.74	0.79	UGL	LT		GO
			2CLP	28-apr-1993	ES	3.74	0.99	UGL	LT		GO
			2CNAP	28-apr-1993	ES	3.74	0.5	UGL	LT		GO
			2MNAP	28-apr-1993	ES	3.74	1.7	UGL	LT		GO
			2MP	28-apr-1993	ES	3.74	3.9	UGL	LT		GO
			2NANIL	28-apr-1993	ES	3.74	4.3	UGL	LT		GO
			2NP	28-apr-1993	ES	3.74	3.7	UGL	LT		GO
			33DCBD	28-apr-1993	ES	3.74	12	UGL	LT		GO
			3NANIL	28-apr-1993	ES	3.74	4.9	UGL	LT		GO
			46DN2C	28-apr-1993	ES	3.74	17	UGL	LT		GO
			4BRPPE	28-apr-1993	ES	3.74	4.2	UGL	LT		GO
			4CANIL	28-apr-1993	ES	3.74	7.3	UGL	LT		GO
			4CL3C	28-apr-1993	ES	3.74	4	UGL	LT		GO
			4CLPPE	28-apr-1993	ES	3.74	5.1	UGL	LT		GO
			4MP	28-apr-1993	ES	3.74	0.52	UGL	LT		GO
			4NANIL	28-apr-1993	ES	3.74	5.2	UGL	LT		GO
			4NP	28-apr-1993	ES	3.74	12	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			ABHC	28-apr-1993	ES	3.74	4	UGL	ND	R	GO
			ACLDAN	28-apr-1993	ES	3.74	5.1	UGL	ND	R	GO
WELL	MW002	UM18	AENSLF	28-apr-1993	ES	3.74	9.2	UGL	ND	R	GO
			ALDRN	28-apr-1993	ES	3.74	4.7	UGL	ND	R	GO
			ANAPNE	28-apr-1993	ES	3.74	1.7	UGL	LT		GO
			ANAPYL	28-apr-1993	ES	3.74	0.5	UGL	LT		GO
			ANTRC	28-apr-1993	ES	3.74	0.5	UGL	LT		GO
			B2CEXM	28-apr-1993	ES	3.74	1.5	UGL	LT		GO
			B2CIPE	28-apr-1993	ES	3.74	5.3	UGL	LT		GO
			B2CLEE	28-apr-1993	ES	3.74	1.9	UGL	LT		GO
			B2EHP	28-apr-1993	ES	3.74	4.8	UGL	LT		GO
			BAANTR	28-apr-1993	ES	3.74	1.6	UGL	LT		GO
			BAPYR	28-apr-1993	ES	3.74	4.7	UGL	LT		GO
			BBFANT	28-apr-1993	ES	3.74	5.4	UGL	LT		GO
			BBHC	28-apr-1993	ES	3.74	4	UGL	ND	R	GO
			BBZP	28-apr-1993	ES	3.74	3.4	UGL	LT		GO
			BENSLF	28-apr-1993	ES	3.74	9.2	UGL	ND	R	GO
			BENZID	28-apr-1993	ES	3.74	10	UGL	ND	R	GO
			BENZOA	28-apr-1993	ES	3.74	13	UGL	LT		GO
			BGHIPY	28-apr-1993	ES	3.74	6.1	UGL	LT		GO
			BKFANT	28-apr-1993	ES	3.74	0.87	UGL	LT		GO
			BZALC	28-apr-1993	ES	3.74	0.72	UGL	LT		GO
			CARBAZ	28-apr-1993	ES	3.74	0.5	UGL	ND	R	GO
			CHRY	28-apr-1993	ES	3.74	2.4	UGL	LT		GO
			CL6BZ	28-apr-1993	ES	3.74	1.6	UGL	LT		GO
			CL6CP	28-apr-1993	ES	3.74	8.6	UGL	LT		GO
			CL6ET	28-apr-1993	ES	3.74	1.5	UGL	LT		GO
			DBAHA	28-apr-1993	ES	3.74	6.5	UGL	LT		GO
			DBHC	28-apr-1993	ES	3.74	4	UGL	ND	R	GO
			DBZFUR	28-apr-1993	ES	3.74	1.7	UGL	LT		GO
			DEP	28-apr-1993	ES	3.74	2	UGL	LT		GO
			DLDRN	28-apr-1993	ES	3.74	4.7	UGL	ND	R	GO
			DMP	28-apr-1993	ES	3.74	1.5	UGL	LT		GO
			DNBP	28-apr-1993	ES	3.74	3.7	UGL	LT		GO
			DNOP	28-apr-1993	ES	3.74	15	UGL	LT		GO
			ENDRN	28-apr-1993	ES	3.74	7.6	UGL	ND	R	GO
			ENDRNA	28-apr-1993	ES	3.74	8	UGL	ND	R	GO
			ENDRNK	28-apr-1993	ES	3.74	8	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	3.74	9.2	UGL	ND	R	GO
			FANT	28-apr-1993	ES	3.74	3.3	UGL	LT		GO
			FLRENE	28-apr-1993	ES	3.74	3.7	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	3.74	5.1	UGL	ND	R	GO
			HCBD	28-apr-1993	ES	3.74	3.4	UGL	LT		GO
			HPCL	28-apr-1993	ES	3.74	2	UGL	ND	R	GO
			HPCLE	28-apr-1993	ES	3.74	5	UGL	ND	R	GO
			ICDPYR	28-apr-1993	ES	3.74	8.6	UGL	LT		GO
			ISOPHR	28-apr-1993	ES	3.74	4.8	UGL	LT		GO
			LIN	28-apr-1993	ES	3.74	4	UGL	ND	R	GO
			MEXCLR	28-apr-1993	ES	3.74	5.1	UGL	ND	R	GO
			NAP	28-apr-1993	ES	3.74	0.5	UGL	LT		GO
			NB	28-apr-1993	ES	3.74	0.5	UGL	LT		GO
			NNDMEA	28-apr-1993	ES	3.74	2	UGL	ND	R	GO
			NNDNPA	28-apr-1993	ES	3.74	4.4	UGL	LT		GO
			NNDPA	28-apr-1993	ES	3.74	3	UGL	LT		GO
WELL	MW002	UM18	PCB016	28-apr-1993	ES	3.74	21	UGL	ND	R	GO
			PCB221	28-apr-1993	ES	3.74	21	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			PCB232	28-apr-1993	ES	3.74	21	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	3.74	30	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	3.74	30	UGL	ND	R	GO
			PCB254	28-apr-1993	ES	3.74	36	UGL	ND	R	GO
			PCB260	28-apr-1993	ES	3.74	36	UGL	ND	R	GO
			PCP	28-apr-1993	ES	3.74	18	UGL	LT		GO
			PHANTR	28-apr-1993	ES	3.74	0.5	UGL	LT		GO
			PHENOL	28-apr-1993	ES	3.74	9.2	UGL	LT		GO
			PPDDD	28-apr-1993	ES	3.74	4	UGL	ND	R	GO
			PPDDE	28-apr-1993	ES	3.74	4.7	UGL	ND	R	GO
			PPDDT	28-apr-1993	ES	3.74	9.2	UGL	ND	R	GO
			PYR	28-apr-1993	ES	3.74	2.8	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	3.74	36	UGL	ND	R	GO
WELL	MW002	UM20	111TCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			112TCE	28-apr-1993	ES	0	1.2	UGL	LT		GO
			11DCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			11DCLE	28-apr-1993	ES	0	0.68	UGL	LT		GO
			12DCE	28-apr-1993	ES	0	0.86	UGL			GO
			12DCLE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLP	28-apr-1993	ES	0	0.5	UGL	LT		GO
			2CLEVE	28-apr-1993	ES	0	0.71	UGL	LT		GO
			ACET	28-apr-1993	ES	0	13	UGL	LT		GO
			ACROLN	28-apr-1993	ES	0	100	UGL	ND	R	GO
			ACRYLO	28-apr-1993	ES	0	100	UGL	ND	R	GO
			BRDCLM	28-apr-1993	ES	0	0.59	UGL	LT		GO
			C13DCP	28-apr-1993	ES	0	0.58	UGL	LT		GO
			C2AVE	28-apr-1993	ES	0	8.3	UGL	LT		GO
			C2H3CL	28-apr-1993	ES	0	2.6	UGL	LT		GO
			C2H5CL	28-apr-1993	ES	0	1.9	UGL	LT		GO
			C6H6	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CCL3F	28-apr-1993	ES	0	1.4	UGL	LT		GO
			CCL4	28-apr-1993	ES	0	0.58	UGL	LT		GO
			CH2CL2	28-apr-1993	ES	0	2.3	UGL	LT		GO
			CH3BR	28-apr-1993	ES	0	5.8	UGL	LT		GO
			CH3CL	28-apr-1993	ES	0	3.2	UGL	LT		GO
			CHBR3	28-apr-1993	ES	0	2.6	UGL	LT		GO
			CHCL3	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CL2BZ	28-apr-1993	ES	0	10	UGL	ND	R	GO
			CLC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CS2	28-apr-1993	ES	0	0.5	UGL	LT		GO
			DBRCLM	28-apr-1993	ES	0	0.67	UGL	LT		GO
			ETC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEK	28-apr-1993	ES	0	6.4	UGL	LT		GO
			MIBK	28-apr-1993	ES	0	3	UGL	LT		GO
			MNBK	28-apr-1993	ES	0	3.6	UGL	LT		GO
			STYR	28-apr-1993	ES	0	0.5	UGL	LT		GO
			T13DCP	28-apr-1993	ES	0	0.7	UGL	LT		GO
			TCLEA	28-apr-1993	ES	0	0.51	UGL	LT		GO
WELL	MW002	UM20	TCLEE	28-apr-1993	ES	0	1.6	UGL	LT		GO
			TRCLE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			XYLEN	28-apr-1993	ES	0	0.84	UGL	LT		GO
WELL	MW004	00	OILGR	28-apr-1993	ES	8	168	UGL	LT		GO
			TPHC	28-apr-1993	ES	8	168	UGL	LT		GO
WELL	MW004	SB01	HG	28-apr-1993	ES	8	0.243	UGL	LT		GO
WELL	MW004	SD09	TL	28-apr-1993	ES	8	6.99	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
WELL	MW004	SD20	PB	28-apr-1993	ES	8	1.26	UGL	LT		GO
WELL	MW004	SD21	SE	28-apr-1993	ES	8	3.02	UGL	LT		GO
WELL	MW004	SD22	AS	28-apr-1993	ES	8	2.54	UGL	LT		GO
WELL	MW004	SS10	AG	28-apr-1993	ES	8	4.6	UGL	LT		GO
			AL	28-apr-1993	ES	8	141	UGL	LT		GO
			BA	28-apr-1993	ES	8	31.1	UGL			GO
			BE	28-apr-1993	ES	8	5	UGL	LT		GO
			CA	28-apr-1993	ES	8	218000	UGL			GO
			CD	28-apr-1993	ES	8	4.01	UGL	LT		GO
			CO	28-apr-1993	ES	8	25	UGL	LT		GO
			CR	28-apr-1993	ES	8	6.02	UGL	LT		GO
			CU	28-apr-1993	ES	8	8.09	UGL	LT		GO
			FE	28-apr-1993	ES	8	43.8	UGL			GO
			K	28-apr-1993	ES	8	1420	UGL			GO
			MG	28-apr-1993	ES	8	58300	UGL			GO
			MN	28-apr-1993	ES	8	3.19	UGL			GO
			NA	28-apr-1993	ES	8	114000	UGL			GO
			NI	28-apr-1993	ES	8	34.3	UGL	LT		GO
			SB	28-apr-1993	ES	8	38	UGL	LT		GO
			V	28-apr-1993	ES	8	11	UGL	LT		GO
			ZN	28-apr-1993	ES	8	21.1	UGL	LT		GO
WELL	MW004	TF18	CYN	28-apr-1993	ES	8	2.5	UGL	LT		GO
WELL	MW004	TF22	NIT	28-apr-1993	ES	8	33	UGL			GO
WELL	MW004	TT10	CL	28-apr-1993	ES	8	99000	UGL			GO
			SO4	28-apr-1993	ES	8	340000	UGL			GO
WELL	MW004	UH02	PCB016	28-apr-1993	ES	8	0.16	UGL	LT		GO
			PCB221	28-apr-1993	ES	8	0.16	UGL	ND	R	GO
			PCB232	28-apr-1993	ES	8	0.16	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	8	0.19	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	8	0.19	UGL	ND	R	GO
			PCB254	28-apr-1993	ES	8	0.19	UGL	ND	R	GO
			PCB260	28-apr-1993	ES	8	0.19	UGL	LT		GO
WELL	MW004	UH13	ABHC	28-apr-1993	ES	8	0.0385	UGL	LT		GO
WELL	MW004	UH13	ACLDAN	28-apr-1993	ES	8	0.075	UGL	ND	R	GO
			AENSLF	28-apr-1993	ES	8	0.023	UGL	LT		GO
			ALDRN	28-apr-1993	ES	8	0.0918	UGL	LT		GO
			BBHC	28-apr-1993	ES	8	0.024	UGL	LT		GO
			BENSLF	28-apr-1993	ES	8	0.023	UGL	LT		GO
			DBHC	28-apr-1993	ES	8	0.0293	UGL	LT		GO
			DLDRN	28-apr-1993	ES	8	0.024	UGL	LT		GO
			ENDRN	28-apr-1993	ES	8	0.0238	UGL	LT		GO
			ENDRNA	28-apr-1993	ES	8	0.0285	UGL	LT		GO
			ENDRNK	28-apr-1993	ES	8	0.0285	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	8	0.0786	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	8	0.075	UGL	ND	R	GO
			HPCL	28-apr-1993	ES	8	0.0423	UGL	LT		GO
			HPCLE	28-apr-1993	ES	8	0.0245	UGL	LT		GO
			ISODR	28-apr-1993	ES	8	0.0562	UGL	LT		GO
			LIN	28-apr-1993	ES	8	0.0507	UGL	LT		GO
			MEXCLR	28-apr-1993	ES	8	0.057	UGL	LT		GO
			PPDDD	28-apr-1993	ES	8	0.0233	UGL	LT		GO
			PPDDE	28-apr-1993	ES	8	0.027	UGL	LT		GO
			PPDDT	28-apr-1993	ES	8	0.034	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	8	1.35	UGL	LT		GO
WELL	MW004	UM18	124TCB	28-apr-1993	ES	8	1.8	UGL	LT		GO
			12DCLB	28-apr-1993	ES	8	1.7	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			12DPH	28-apr-1993	ES	8	2	UGL	ND	R	GO
			13DCLB	28-apr-1993	ES	8	1.7	UGL	LT		GO
			14DCLB	28-apr-1993	ES	8	1.7	UGL	LT		GO
			245TCP	28-apr-1993	ES	8	5.2	UGL	LT		GO
			246TCP	28-apr-1993	ES	8	4.2	UGL	LT		GO
			24DCLP	28-apr-1993	ES	8	2.9	UGL	LT		GO
			24DMPN	28-apr-1993	ES	8	5.8	UGL	LT		GO
			24DNP	28-apr-1993	ES	8	21	UGL	LT		GO
			24DNT	28-apr-1993	ES	8	4.5	UGL	LT		GO
			26DNT	28-apr-1993	ES	8	0.79	UGL	LT		GO
			2CLP	28-apr-1993	ES	8	0.99	UGL	LT		GO
			2CNAP	28-apr-1993	ES	8	0.5	UGL	LT		GO
			2MNAP	28-apr-1993	ES	8	1.7	UGL	LT		GO
			2MP	28-apr-1993	ES	8	3.9	UGL	LT		GO
			2NANIL	28-apr-1993	ES	8	4.3	UGL	LT		GO
			2NP	28-apr-1993	ES	8	3.7	UGL	LT		GO
			33DCBD	28-apr-1993	ES	8	12	UGL	LT		GO
			3NANIL	28-apr-1993	ES	8	4.9	UGL	LT		GO
			46DN2C	28-apr-1993	ES	8	17	UGL	LT		GO
			4BRPPE	28-apr-1993	ES	8	4.2	UGL	LT		GO
			4CANIL	28-apr-1993	ES	8	7.3	UGL	LT		GO
			4CL3C	28-apr-1993	ES	8	4	UGL	LT		GO
			4CLPPE	28-apr-1993	ES	8	5.1	UGL	LT		GO
			4MP	28-apr-1993	ES	8	0.52	UGL	LT		GO
			4NANIL	28-apr-1993	ES	8	5.2	UGL	LT		GO
			4NP	28-apr-1993	ES	8	12	UGL	LT		GO
			ABHC	28-apr-1993	ES	8	4	UGL	ND	R	GO
			ACLDAN	28-apr-1993	ES	8	5.1	UGL	ND	R	GO
WELL	MW004	UM18	AENSLF	28-apr-1993	ES	8	9.2	UGL	ND	R	GO
			ALDRN	28-apr-1993	ES	8	4.7	UGL	ND	R	GO
			ANAPNE	28-apr-1993	ES	8	1.7	UGL	LT		GO
			ANAPYL	28-apr-1993	ES	8	0.5	UGL	LT		GO
			ANTRC	28-apr-1993	ES	8	0.5	UGL	LT		GO
			B2CEXM	28-apr-1993	ES	8	1.5	UGL	LT		GO
			B2CIPE	28-apr-1993	ES	8	5.3	UGL	LT		GO
			B2CLEE	28-apr-1993	ES	8	1.9	UGL	LT		GO
			B2EHP	28-apr-1993	ES	8	4.8	UGL	LT		GO
			BAANTR	28-apr-1993	ES	8	1.6	UGL	LT		GO
			BAPYR	28-apr-1993	ES	8	4.7	UGL	LT		GO
			BBFANT	28-apr-1993	ES	8	5.4	UGL	LT		GO
			BBHC	28-apr-1993	ES	8	4	UGL	ND	R	GO
			BBZP	28-apr-1993	ES	8	3.4	UGL	LT		GO
			BENSLF	28-apr-1993	ES	8	9.2	UGL	ND	R	GO
			BENZID	28-apr-1993	ES	8	10	UGL	ND	R	GO
			BENZOA	28-apr-1993	ES	8	13	UGL	LT		GO
			BGHIPY	28-apr-1993	ES	8	6.1	UGL	LT		GO
			BKFANT	28-apr-1993	ES	8	0.87	UGL	LT		GO
			BZALC	28-apr-1993	ES	8	0.72	UGL	LT		GO
			CARBAZ	28-apr-1993	ES	8	0.5	UGL	ND	R	GO
			CHRY	28-apr-1993	ES	8	2.4	UGL	LT		GO
			CL6BZ	28-apr-1993	ES	8	1.6	UGL	LT		GO
			CL6CP	28-apr-1993	ES	8	8.6	UGL	LT		GO
			CL6ET	28-apr-1993	ES	8	1.5	UGL	LT		GO
			DBAHA	28-apr-1993	ES	8	6.5	UGL	LT		GO
			DBHC	28-apr-1993	ES	8	4	UGL	ND	R	GO
			DBZFUR	28-apr-1993	ES	8	1.7	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			DEP	28-apr-1993	ES	8	2	UGL	LT		GO
			DLDRN	28-apr-1993	ES	8	4.7	UGL	ND	R	GO
			DMP	28-apr-1993	ES	8	1.5	UGL	LT		GO
			DNBP	28-apr-1993	ES	8	3.7	UGL	LT		GO
			DNOP	28-apr-1993	ES	8	15	UGL	LT		GO
			ENDRN	28-apr-1993	ES	8	7.6	UGL	ND	R	GO
			ENDRNA	28-apr-1993	ES	8	8	UGL	ND	R	GO
			ENDRNK	28-apr-1993	ES	8	8	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	8	9.2	UGL	ND	R	GO
			FANT	28-apr-1993	ES	8	3.3	UGL	LT		GO
			FLRENE	28-apr-1993	ES	8	3.7	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	8	5.1	UGL	ND	R	GO
			HCBD	28-apr-1993	ES	8	3.4	UGL	LT		GO
			HPCL	28-apr-1993	ES	8	2	UGL	ND	R	GO
			HPCLE	28-apr-1993	ES	8	5	UGL	ND	R	GO
			ICDPYR	28-apr-1993	ES	8	8.6	UGL	LT		GO
			ISOPHR	28-apr-1993	ES	8	4.8	UGL	LT		GO
			LIN	28-apr-1993	ES	8	4	UGL	ND	R	GO
			MEXCLR	28-apr-1993	ES	8	5.1	UGL	ND	R	GO
			NAP	28-apr-1993	ES	8	0.5	UGL	LT		GO
			NB	28-apr-1993	ES	8	0.5	UGL	LT		GO
			NNDMEA	28-apr-1993	ES	8	2	UGL	ND	R	GO
			NNDNPA	28-apr-1993	ES	8	4.4	UGL	LT		GO
			NNDPA	28-apr-1993	ES	8	3	UGL	LT		GO
WELL	MW004	UM18	PCB016	28-apr-1993	ES	8	21	UGL	ND	R	GO
			PCB221	28-apr-1993	ES	8	21	UGL	ND	R	GO
			PCB232	28-apr-1993	ES	8	21	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	8	30	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	8	30	UGL	ND	R	GO
			PCB254	28-apr-1993	ES	8	36	UGL	ND	R	GO
			PCB260	28-apr-1993	ES	8	36	UGL	ND	R	GO
			PCP	28-apr-1993	ES	8	18	UGL	LT		GO
			PHANTR	28-apr-1993	ES	8	0.5	UGL	LT		GO
			PHENOL	28-apr-1993	ES	8	9.2	UGL	LT		GO
			PPDDD	28-apr-1993	ES	8	4	UGL	ND	R	GO
			PPDDE	28-apr-1993	ES	8	4.7	UGL	ND	R	GO
			PPDDT	28-apr-1993	ES	8	9.2	UGL	ND	R	GO
			PYR	28-apr-1993	ES	8	2.8	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	8	36	UGL	ND	R	GO
WELL	MW004	UM20	111TCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			112TCE	28-apr-1993	ES	0	1.2	UGL	LT		GO
			11DCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			11DCLE	28-apr-1993	ES	0	0.68	UGL	LT		GO
			12DCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLP	28-apr-1993	ES	0	0.5	UGL	LT		GO
			2CLEVE	28-apr-1993	ES	0	0.71	UGL	LT		GO
			ACET	28-apr-1993	ES	0	13	UGL	LT		GO
			ACROLN	28-apr-1993	ES	0	100	UGL	ND	R	GO
			ACRYLO	28-apr-1993	ES	0	100	UGL	ND	R	GO
			BRDCLM	28-apr-1993	ES	0	0.59	UGL	LT		GO
			C13DCP	28-apr-1993	ES	0	0.58	UGL	LT		GO
			C2AVE	28-apr-1993	ES	0	8.3	UGL	LT		GO
			C2H3CL	28-apr-1993	ES	0	2.6	UGL	LT		GO
			C2H5CL	28-apr-1993	ES	0	1.9	UGL	LT		GO
			C6H6	28-apr-1993	ES	0	0.5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			CCL3F	28-apr-1993	ES	0	1.4	UGL	LT		GO
			CCL4	28-apr-1993	ES	0	0.58	UGL	LT		GO
			CH2CL2	28-apr-1993	ES	0	2.3	UGL	LT		GO
			CH3BR	28-apr-1993	ES	0	5.8	UGL	LT		GO
			CH3CL	28-apr-1993	ES	0	3.2	UGL	LT		GO
			CHBR3	28-apr-1993	ES	0	2.6	UGL	LT		GO
			CHCL3	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CL2BZ	28-apr-1993	ES	0	10	UGL	ND	R	GO
			CLC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CS2	28-apr-1993	ES	0	0.5	UGL	LT		GO
			DBRCLM	28-apr-1993	ES	0	0.67	UGL	LT		GO
			ETC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEK	28-apr-1993	ES	0	6.4	UGL	LT		GO
			MIBK	28-apr-1993	ES	0	3	UGL	LT		GO
			MNBK	28-apr-1993	ES	0	3.6	UGL	LT		GO
			STYR	28-apr-1993	ES	0	0.5	UGL	LT		GO
			T13DCP	28-apr-1993	ES	0	0.7	UGL	LT		GO
			TCLEA	28-apr-1993	ES	0	0.51	UGL	LT		GO
WELL	MW004	UM20	TCLEE	28-apr-1993	ES	0	1.6	UGL	LT		GO
			TRCLE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			XYLEN	28-apr-1993	ES	0	0.84	UGL	LT		GO
WELL	MW010	00	OILGR	28-apr-1993	ES	5.58	168	UGL	LT		GO
			TPHC	28-apr-1993	ES	5.58	168	UGL	LT		GO
WELL	MW010	SB01	HG	28-apr-1993	ES	5.58	0.243	UGL	LT		GO
WELL	MW010	SD09	TL	28-apr-1993	ES	5.58	6.99	UGL	LT		GO
WELL	MW010	SD20	PB	28-apr-1993	ES	5.58	1.26	UGL	LT		GO
WELL	MW010	SD21	SE	28-apr-1993	ES	5.58	3.02	UGL	LT		GO
WELL	MW010	SD22	AS	28-apr-1993	ES	5.58	2.54	UGL	LT		GO
WELL	MW010	SS10	AG	28-apr-1993	ES	5.58	4.6	UGL	LT		GO
			AL	28-apr-1993	ES	5.58	141	UGL	LT		GO
			BA	28-apr-1993	ES	5.58	53.7	UGL			GO
			BE	28-apr-1993	ES	5.58	5	UGL	LT		GO
			CA	28-apr-1993	ES	5.58	145000	UGL			GO
			CD	28-apr-1993	ES	5.58	4.01	UGL	LT		GO
			CO	28-apr-1993	ES	5.58	25	UGL	LT		GO
			CR	28-apr-1993	ES	5.58	6.02	UGL	LT		GO
			CU	28-apr-1993	ES	5.58	8.09	UGL	LT		GO
			FE	28-apr-1993	ES	5.58	38.8	UGL	LT		GO
			K	28-apr-1993	ES	5.58	3340	UGL			GO
			MG	28-apr-1993	ES	5.58	44400	UGL			GO
			MN	28-apr-1993	ES	5.58	2.75	UGL	LT		GO
			NA	28-apr-1993	ES	5.58	193000	UGL			GO
			NI	28-apr-1993	ES	5.58	34.3	UGL	LT		GO
			SB	28-apr-1993	ES	5.58	38	UGL	LT		GO
			V	28-apr-1993	ES	5.58	11	UGL	LT		GO
			ZN	28-apr-1993	ES	5.58	21.1	UGL	LT		GO
WELL	MW010	TF18	CYN	28-apr-1993	ES	5.58	2.5	UGL	LT		GO
WELL	MW010	TF22	NIT	28-apr-1993	ES	5.58	55.4	UGL			GO
WELL	MW010	TT10	CL	28-apr-1993	ES	5.58	310000	UGL			GO
			SO4	28-apr-1993	ES	5.58	104000	UGL			GO
WELL	MW010	UH02	PCB016	28-apr-1993	ES	5.58	0.16	UGL	LT		GO
			PCB221	28-apr-1993	ES	5.58	0.16	UGL	ND	R	GO
			PCB232	28-apr-1993	ES	5.58	0.16	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	5.58	0.19	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	5.58	0.19	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			PCB254	28-apr-1993	ES	5.58	0.19	UGL	ND	R	GO
			PCB260	28-apr-1993	ES	5.58	0.19	UGL	LT		GO
WELL	MW010	UH13	ABHC	28-apr-1993	ES	5.58	0.0385	UGL	LT		GO
WELL	MW010	UH13	ACLDAN	28-apr-1993	ES	5.58	0.075	UGL	ND	R	GO
			AENSLF	28-apr-1993	ES	5.58	0.023	UGL	LT		GO
			ALDRN	28-apr-1993	ES	5.58	0.0918	UGL	LT		GO
			BBHC	28-apr-1993	ES	5.58	0.024	UGL	LT		GO
			BENSLF	28-apr-1993	ES	5.58	0.023	UGL	LT		GO
			DBHC	28-apr-1993	ES	5.58	0.0293	UGL	LT		GO
			DLDRN	28-apr-1993	ES	5.58	0.024	UGL	LT		GO
			ENDRN	28-apr-1993	ES	5.58	0.0238	UGL	LT		GO
			ENDRNA	28-apr-1993	ES	5.58	0.0285	UGL	LT		GO
			ENDRNK	28-apr-1993	ES	5.58	0.0285	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	5.58	0.0786	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	5.58	0.075	UGL	ND	R	GO
			HPCL	28-apr-1993	ES	5.58	0.0423	UGL	LT		GO
			HPCLE	28-apr-1993	ES	5.58	0.0245	UGL	LT		GO
			ISODR	28-apr-1993	ES	5.58	0.0562	UGL	LT		GO
			LIN	28-apr-1993	ES	5.58	0.0507	UGL	LT		GO
			MEXCLR	28-apr-1993	ES	5.58	0.057	UGL	LT		GO
			PPDDD	28-apr-1993	ES	5.58	0.0233	UGL	LT		GO
			PPDDE	28-apr-1993	ES	5.58	0.027	UGL	LT		GO
			PPDDT	28-apr-1993	ES	5.58	0.034	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	5.58	1.35	UGL	LT		GO
WELL	MW010	UM18	124TCB	28-apr-1993	ES	5.58	1.8	UGL	LT		GO
			12DCLB	28-apr-1993	ES	5.58	1.7	UGL	LT		GO
			12DPH	28-apr-1993	ES	5.58	2	UGL	ND	R	GO
			13DCLB	28-apr-1993	ES	5.58	1.7	UGL	LT		GO
			14DCLB	28-apr-1993	ES	5.58	1.7	UGL	LT		GO
			245TCP	28-apr-1993	ES	5.58	5.2	UGL	LT		GO
			246TCP	28-apr-1993	ES	5.58	4.2	UGL	LT		GO
			24DCLP	28-apr-1993	ES	5.58	2.9	UGL	LT		GO
			24DMPN	28-apr-1993	ES	5.58	5.8	UGL	LT		GO
			24DNP	28-apr-1993	ES	5.58	21	UGL	LT		GO
			24DNT	28-apr-1993	ES	5.58	4.5	UGL	LT		GO
			26DNT	28-apr-1993	ES	5.58	0.79	UGL	LT		GO
			2CLP	28-apr-1993	ES	5.58	0.99	UGL	LT		GO
			2CNAP	28-apr-1993	ES	5.58	0.5	UGL	LT		GO
			2MNAP	28-apr-1993	ES	5.58	1.7	UGL	LT		GO
			2MP	28-apr-1993	ES	5.58	3.9	UGL	LT		GO
			2NANIL	28-apr-1993	ES	5.58	4.3	UGL	LT		GO
			2NP	28-apr-1993	ES	5.58	3.7	UGL	LT		GO
			33DCBD	28-apr-1993	ES	5.58	12	UGL	LT		GO
			3NANIL	28-apr-1993	ES	5.58	4.9	UGL	LT		GO
			46DN2C	28-apr-1993	ES	5.58	17	UGL	LT		GO
			4BRPPE	28-apr-1993	ES	5.58	4.2	UGL	LT		GO
			4CANIL	28-apr-1993	ES	5.58	7.3	UGL	LT		GO
			4CL3C	28-apr-1993	ES	5.58	4	UGL	LT		GO
			4CLPPE	28-apr-1993	ES	5.58	5.1	UGL	LT		GO
			4MP	28-apr-1993	ES	5.58	0.52	UGL	LT		GO
			4NANIL	28-apr-1993	ES	5.58	5.2	UGL	LT		GO
			4NP	28-apr-1993	ES	5.58	12	UGL	LT		GO
			ABHC	28-apr-1993	ES	5.58	4	UGL	ND	R	GO
			ACLDAN	28-apr-1993	ES	5.58	5.1	UGL	ND	R	GO
WELL	MW010	UM18	AENSLF	28-apr-1993	ES	5.58	9.2	UGL	ND	R	GO
			ALDRN	28-apr-1993	ES	5.58	4.7	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			ANAPNE	28-apr-1993	ES	5.58	1.7	UGL	LT		GO
			ANAPYL	28-apr-1993	ES	5.58	0.5	UGL	LT		GO
			ANTRC	28-apr-1993	ES	5.58	0.5	UGL	LT		GO
			B2CEXM	28-apr-1993	ES	5.58	1.5	UGL	LT		GO
			B2CIPE	28-apr-1993	ES	5.58	5.3	UGL	LT		GO
			B2CLEE	28-apr-1993	ES	5.58	1.9	UGL	LT		GO
			B2EHP	28-apr-1993	ES	5.58	4.8	UGL	LT		GO
			BAANTR	28-apr-1993	ES	5.58	1.6	UGL	LT		GO
			BAPYR	28-apr-1993	ES	5.58	4.7	UGL	LT		GO
			BBFANT	28-apr-1993	ES	5.58	5.4	UGL	LT		GO
			BBHC	28-apr-1993	ES	5.58	4	UGL	ND	R	GO
			BBZP	28-apr-1993	ES	5.58	3.4	UGL	LT		GO
			BENSLF	28-apr-1993	ES	5.58	9.2	UGL	ND	R	GO
			BENZID	28-apr-1993	ES	5.58	10	UGL	ND	R	GO
			BENZOA	28-apr-1993	ES	5.58	13	UGL	LT		GO
			BGHIPY	28-apr-1993	ES	5.58	6.1	UGL	LT		GO
			BKFANT	28-apr-1993	ES	5.58	0.87	UGL	LT		GO
			BZALC	28-apr-1993	ES	5.58	0.72	UGL	LT		GO
			CARBAZ	28-apr-1993	ES	5.58	0.5	UGL	ND	R	GO
			CHRY	28-apr-1993	ES	5.58	2.4	UGL	LT		GO
			CL6BZ	28-apr-1993	ES	5.58	1.6	UGL	LT		GO
			CL6CP	28-apr-1993	ES	5.58	8.6	UGL	LT		GO
			CL6ET	28-apr-1993	ES	5.58	1.5	UGL	LT		GO
			DBAHA	28-apr-1993	ES	5.58	6.5	UGL	LT		GO
			DBHC	28-apr-1993	ES	5.58	4	UGL	ND	R	GO
			DBZFUR	28-apr-1993	ES	5.58	1.7	UGL	LT		GO
			DEP	28-apr-1993	ES	5.58	2	UGL	LT		GO
			DLDRN	28-apr-1993	ES	5.58	4.7	UGL	ND	R	GO
			DMP	28-apr-1993	ES	5.58	1.5	UGL	LT		GO
			DNBP	28-apr-1993	ES	5.58	3.7	UGL	LT		GO
			DNOP	28-apr-1993	ES	5.58	15	UGL	LT		GO
			ENDRN	28-apr-1993	ES	5.58	7.6	UGL	ND	R	GO
			ENDRNA	28-apr-1993	ES	5.58	8	UGL	ND	R	GO
			ENDRNK	28-apr-1993	ES	5.58	8	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	5.58	9.2	UGL	ND	R	GO
			FANT	28-apr-1993	ES	5.58	3.3	UGL	LT		GO
			FLRENE	28-apr-1993	ES	5.58	3.7	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	5.58	5.1	UGL	ND	R	GO
			HCBD	28-apr-1993	ES	5.58	3.4	UGL	LT		GO
			HPCL	28-apr-1993	ES	5.58	2	UGL	ND	R	GO
			HPCLE	28-apr-1993	ES	5.58	5	UGL	ND	R	GO
			ICDPYR	28-apr-1993	ES	5.58	8.6	UGL	LT		GO
			ISOPHR	28-apr-1993	ES	5.58	4.8	UGL	LT		GO
			LIN	28-apr-1993	ES	5.58	4	UGL	ND	R	GO
			MEXCLR	28-apr-1993	ES	5.58	5.1	UGL	ND	R	GO
			NAP	28-apr-1993	ES	5.58	0.5	UGL	LT		GO
			NB	28-apr-1993	ES	5.58	0.5	UGL	LT		GO
			NNDMEA	28-apr-1993	ES	5.58	2	UGL	ND	R	GO
			NNDNPA	28-apr-1993	ES	5.58	4.4	UGL	LT		GO
			NNDPA	28-apr-1993	ES	5.58	3	UGL	LT		GO
WELL	MW010	UM18	PCB016	28-apr-1993	ES	5.58	21	UGL	ND	R	GO
			PCB221	28-apr-1993	ES	5.58	21	UGL	ND	R	GO
			PCB232	28-apr-1993	ES	5.58	21	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	5.58	30	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	5.58	30	UGL	ND	R	GO
			PCB254	28-apr-1993	ES	5.58	36	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			PCB260	28-apr-1993	ES	5.58	36	UGL	ND	R	GO
			PCP	28-apr-1993	ES	5.58	18	UGL	LT		GO
			PHANTR	28-apr-1993	ES	5.58	0.5	UGL	LT		GO
			PHENOL	28-apr-1993	ES	5.58	9.2	UGL	LT		GO
			PPDDD	28-apr-1993	ES	5.58	4	UGL	ND	R	GO
			PPDDE	28-apr-1993	ES	5.58	4.7	UGL	ND	R	GO
			PPDDT	28-apr-1993	ES	5.58	9.2	UGL	ND	R	GO
			PYR	28-apr-1993	ES	5.58	2.8	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	5.58	36	UGL	ND	R	GO
WELL	MW010	UM20	111TCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			112TCE	28-apr-1993	ES	0	1.2	UGL	LT		GO
			11DCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			11DCLE	28-apr-1993	ES	0	0.68	UGL	LT		GO
			12DCE	28-apr-1993	ES	0	0.78	UGL			GO
			12DCLE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLP	28-apr-1993	ES	0	0.5	UGL	LT		GO
			2CLEVE	28-apr-1993	ES	0	0.71	UGL	LT		GO
			ACET	28-apr-1993	ES	0	13	UGL	LT		GO
			ACROLN	28-apr-1993	ES	0	100	UGL	ND	R	GO
			ACRYLO	28-apr-1993	ES	0	100	UGL	ND	R	GO
			BRDCLM	28-apr-1993	ES	0	0.59	UGL	LT		GO
			C13DCP	28-apr-1993	ES	0	0.58	UGL	LT		GO
			C2AVE	28-apr-1993	ES	0	8.3	UGL	LT		GO
			C2H3CL	28-apr-1993	ES	0	2.6	UGL	LT		GO
			C2H5CL	28-apr-1993	ES	0	1.9	UGL	LT		GO
			C6H6	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CCL3F	28-apr-1993	ES	0	1.4	UGL	LT		GO
			CCL4	28-apr-1993	ES	0	0.58	UGL	LT		GO
			CH2CL2	28-apr-1993	ES	0	2.3	UGL	LT		GO
			CH3BR	28-apr-1993	ES	0	5.8	UGL	LT		GO
			CH3CL	28-apr-1993	ES	0	3.2	UGL	LT		GO
			CHBR3	28-apr-1993	ES	0	2.6	UGL	LT		GO
			CHCL3	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CL2BZ	28-apr-1993	ES	0	10	UGL	ND	R	GO
			CLC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CS2	28-apr-1993	ES	0	0.5	UGL	LT		GO
			DBRCLM	28-apr-1993	ES	0	0.67	UGL	LT		GO
			ETC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEK	28-apr-1993	ES	0	6.4	UGL	LT		GO
			MIBK	28-apr-1993	ES	0	3	UGL	LT		GO
			MNBK	28-apr-1993	ES	0	3.6	UGL	LT		GO
			STYR	28-apr-1993	ES	0	0.5	UGL	LT		GO
			T13DCP	28-apr-1993	ES	0	0.7	UGL	LT		GO
			TCLEA	28-apr-1993	ES	0	0.51	UGL	LT		GO
WELL	MW010	UM20	TCLEE	28-apr-1993	ES	0	1.6	UGL	LT		GO
			TRCLE	28-apr-1993	ES	0	0.7	UGL			GO
			XYLEN	28-apr-1993	ES	0	0.84	UGL	LT		GO
WELL	MW014	00	OILGR	28-apr-1993	ES	7.08	168	UGL	LT		GO
			TPHC	28-apr-1993	ES	7.08	168	UGL	LT		GO
WELL	MW014	SB01	HG	28-apr-1993	ES	7.08	0.243	UGL	LT		GO
WELL	MW014	SD09	TL	28-apr-1993	ES	7.08	6.99	UGL	LT		GO
WELL	MW014	SD20	PB	28-apr-1993	ES	7.08	1.26	UGL	LT		GO
WELL	MW014	SD21	SE	28-apr-1993	ES	7.08	3.02	UGL	LT		GO
WELL	MW014	SD22	AS	28-apr-1993	ES	7.08	2.54	UGL	LT		GO
WELL	MW014	SS10	AG	28-apr-1993	ES	7.08	4.6	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			AL	28-apr-1993	ES	7.08	141	UGL	LT		GO
			BA	28-apr-1993	ES	7.08	133	UGL			GO
			BE	28-apr-1993	ES	7.08	5	UGL	LT		GO
			CA	28-apr-1993	ES	7.08	211000	UGL			GO
			CD	28-apr-1993	ES	7.08	4.01	UGL	LT		GO
			CO	28-apr-1993	ES	7.08	25	UGL	LT		GO
			CR	28-apr-1993	ES	7.08	6.02	UGL	LT		GO
			CU	28-apr-1993	ES	7.08	8.09	UGL	LT		GO
			FE	28-apr-1993	ES	7.08	46.3	UGL			GO
			K	28-apr-1993	ES	7.08	3810	UGL			GO
			MG	28-apr-1993	ES	7.08	138000	UGL			GO
			MN	28-apr-1993	ES	7.08	3.96	UGL			GO
			NA	28-apr-1993	ES	7.08	312000	UGL			GO
			NI	28-apr-1993	ES	7.08	34.3	UGL	LT		GO
			SB	28-apr-1993	ES	7.08	53.1	UGL			GO
			V	28-apr-1993	ES	7.08	12.3	UGL			GO
			ZN	28-apr-1993	ES	7.08	21.1	UGL	LT		GO
WELL	MW014	TF18	CYN	28-apr-1993	ES	7.08	2.5	UGL	LT		GO
WELL	MW014	TF22	NIT	28-apr-1993	ES	7.08	19	UGL			GO
WELL	MW014	TT10	CL	28-apr-1993	ES	7.08	1000000	UGL			GO
			SO4	28-apr-1993	ES	7.08	135000	UGL			GO
WELL	MW014	UH02	PCB016	28-apr-1993	ES	7.08	0.16	UGL	LT		GO
			PCB221	28-apr-1993	ES	7.08	0.16	UGL	ND	R	GO
			PCB232	28-apr-1993	ES	7.08	0.16	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	7.08	0.19	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	7.08	0.19	UGL	ND	R	GO
			PCB254	28-apr-1993	ES	7.08	0.19	UGL	ND	R	GO
			PCB260	28-apr-1993	ES	7.08	0.19	UGL	LT		GO
WELL	MW014	UH13	ABHC	28-apr-1993	ES	7.08	0.0385	UGL	LT		GO
WELL	MW014	UH13	ACLDAN	28-apr-1993	ES	7.08	0.075	UGL	ND	R	GO
			AENSLF	28-apr-1993	ES	7.08	0.023	UGL	LT		GO
			ALDRN	28-apr-1993	ES	7.08	0.0918	UGL	LT		GO
			BBHC	28-apr-1993	ES	7.08	0.024	UGL	LT		GO
			BENSLF	28-apr-1993	ES	7.08	0.023	UGL	LT		GO
			DBHC	28-apr-1993	ES	7.08	0.0293	UGL	LT		GO
			DLDRN	28-apr-1993	ES	7.08	0.024	UGL	LT		GO
			ENDRN	28-apr-1993	ES	7.08	0.0238	UGL	LT		GO
			ENDRNA	28-apr-1993	ES	7.08	0.0285	UGL	LT		GO
			ENDRNK	28-apr-1993	ES	7.08	0.0285	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	7.08	0.0786	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	7.08	0.075	UGL	ND	R	GO
			HPCL	28-apr-1993	ES	7.08	0.0423	UGL	LT		GO
			HPCLE	28-apr-1993	ES	7.08	0.0245	UGL	LT		GO
			ISODR	28-apr-1993	ES	7.08	0.0562	UGL	LT		GO
			LIN	28-apr-1993	ES	7.08	0.0507	UGL	LT		GO
			MEXCLR	28-apr-1993	ES	7.08	0.057	UGL	LT		GO
			PPDDD	28-apr-1993	ES	7.08	0.0233	UGL	LT		GO
			PPDDE	28-apr-1993	ES	7.08	0.027	UGL	LT		GO
			PPDDT	28-apr-1993	ES	7.08	0.034	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	7.08	1.35	UGL	LT		GO
WELL	MW014	UM18	124TCB	28-apr-1993	ES	7.08	1.8	UGL	LT		GO
			12DCLB	28-apr-1993	ES	7.08	1.7	UGL	LT		GO
			12DPH	28-apr-1993	ES	7.08	2	UGL	ND	R	GO
			13DCLB	28-apr-1993	ES	7.08	1.7	UGL	LT		GO
			14DCLB	28-apr-1993	ES	7.08	1.7	UGL	LT		GO
			245TCP	28-apr-1993	ES	7.08	5.2	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			246TCP	28-apr-1993	ES	7.08	4.2	UGL	LT		GO
			24DCLP	28-apr-1993	ES	7.08	2.9	UGL	LT		GO
			24DMPN	28-apr-1993	ES	7.08	5.8	UGL	LT		GO
			24DNP	28-apr-1993	ES	7.08	21	UGL	LT		GO
			24DNT	28-apr-1993	ES	7.08	4.5	UGL	LT		GO
			26DNT	28-apr-1993	ES	7.08	0.79	UGL	LT		GO
			2CLP	28-apr-1993	ES	7.08	0.99	UGL	LT		GO
			2CNAP	28-apr-1993	ES	7.08	0.5	UGL	LT		GO
			2MNAP	28-apr-1993	ES	7.08	1.7	UGL	LT		GO
			2MP	28-apr-1993	ES	7.08	3.9	UGL	LT		GO
			2NANIL	28-apr-1993	ES	7.08	4.3	UGL	LT		GO
			2NP	28-apr-1993	ES	7.08	3.7	UGL	LT		GO
			33DCBD	28-apr-1993	ES	7.08	12	UGL	LT		GO
			3NANIL	28-apr-1993	ES	7.08	4.9	UGL	LT		GO
			46DN2C	28-apr-1993	ES	7.08	17	UGL	LT		GO
			4BRPPE	28-apr-1993	ES	7.08	4.2	UGL	LT		GO
			4CANIL	28-apr-1993	ES	7.08	7.3	UGL	LT		GO
			4CL3C	28-apr-1993	ES	7.08	4	UGL	LT		GO
			4CLPPE	28-apr-1993	ES	7.08	5.1	UGL	LT		GO
			4MP	28-apr-1993	ES	7.08	0.52	UGL	LT		GO
			4NANIL	28-apr-1993	ES	7.08	5.2	UGL	LT		GO
			4NP	28-apr-1993	ES	7.08	12	UGL	LT		GO
			ABHC	28-apr-1993	ES	7.08	4	UGL	ND	R	GO
			ACLDAN	28-apr-1993	ES	7.08	5.1	UGL	ND	R	GO
WELL	MW014	UM18	AENSLF	28-apr-1993	ES	7.08	9.2	UGL	ND	R	GO
			ALDRN	28-apr-1993	ES	7.08	4.7	UGL	ND	R	GO
			ANAPNE	28-apr-1993	ES	7.08	1.7	UGL	LT		GO
			ANAPYL	28-apr-1993	ES	7.08	0.5	UGL	LT		GO
			ANTRC	28-apr-1993	ES	7.08	0.5	UGL	LT		GO
			B2CEXM	28-apr-1993	ES	7.08	1.5	UGL	LT		GO
			B2CIPE	28-apr-1993	ES	7.08	5.3	UGL	LT		GO
			B2CLEE	28-apr-1993	ES	7.08	1.9	UGL	LT		GO
			B2EHP	28-apr-1993	ES	7.08	4.8	UGL	LT		GO
			BAANTR	28-apr-1993	ES	7.08	1.6	UGL	LT		GO
			BAPYR	28-apr-1993	ES	7.08	4.7	UGL	LT		GO
			BBFANT	28-apr-1993	ES	7.08	5.4	UGL	LT		GO
			BBHC	28-apr-1993	ES	7.08	4	UGL	ND	R	GO
			BBZP	28-apr-1993	ES	7.08	3.4	UGL	LT		GO
			BENSLF	28-apr-1993	ES	7.08	9.2	UGL	ND	R	GO
			BENZID	28-apr-1993	ES	7.08	10	UGL	ND	R	GO
			BENZOA	28-apr-1993	ES	7.08	13	UGL	LT		GO
			BGHIPY	28-apr-1993	ES	7.08	6.1	UGL	LT		GO
			BKFANT	28-apr-1993	ES	7.08	0.87	UGL	LT		GO
			BZALC	28-apr-1993	ES	7.08	0.72	UGL	LT		GO
			CARBAZ	28-apr-1993	ES	7.08	0.5	UGL	ND	R	GO
			CHRY	28-apr-1993	ES	7.08	2.4	UGL	LT		GO
			CL6BZ	28-apr-1993	ES	7.08	1.6	UGL	LT		GO
			CL6CP	28-apr-1993	ES	7.08	8.6	UGL	LT		GO
			CL6ET	28-apr-1993	ES	7.08	1.5	UGL	LT		GO
			DBAHA	28-apr-1993	ES	7.08	6.5	UGL	LT		GO
			DBHC	28-apr-1993	ES	7.08	4	UGL	ND	R	GO
			DBZFUR	28-apr-1993	ES	7.08	1.7	UGL	LT		GO
			DEP	28-apr-1993	ES	7.08	2	UGL	LT		GO
			DLDRN	28-apr-1993	ES	7.08	4.7	UGL	ND	R	GO
			DMP	28-apr-1993	ES	7.08	1.5	UGL	LT		GO
			DNBP	28-apr-1993	ES	7.08	3.7	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			DNOP	28-apr-1993	ES	7.08	15	UGL	LT		GO
			ENDRN	28-apr-1993	ES	7.08	7.6	UGL	ND	R	GO
			ENDRNA	28-apr-1993	ES	7.08	8	UGL	ND	R	GO
			ENDRNK	28-apr-1993	ES	7.08	8	UGL	ND	R	GO
			ESFSO4	28-apr-1993	ES	7.08	9.2	UGL	ND	R	GO
			FANT	28-apr-1993	ES	7.08	3.3	UGL	LT		GO
			FLRENE	28-apr-1993	ES	7.08	3.7	UGL	LT		GO
			GCLDAN	28-apr-1993	ES	7.08	5.1	UGL	ND	R	GO
			HCBD	28-apr-1993	ES	7.08	3.4	UGL	LT		GO
			HPCL	28-apr-1993	ES	7.08	2	UGL	ND	R	GO
			HPCLE	28-apr-1993	ES	7.08	5	UGL	ND	R	GO
			ICDPYR	28-apr-1993	ES	7.08	8.6	UGL	LT		GO
			ISOPHR	28-apr-1993	ES	7.08	4.8	UGL	LT		GO
			LIN	28-apr-1993	ES	7.08	4	UGL	ND	R	GO
			MEXCLR	28-apr-1993	ES	7.08	5.1	UGL	ND	R	GO
			NAP	28-apr-1993	ES	7.08	0.5	UGL	LT		GO
			NB	28-apr-1993	ES	7.08	0.5	UGL	LT		GO
			NNDMEA	28-apr-1993	ES	7.08	2	UGL	ND	R	GO
			NNDNPA	28-apr-1993	ES	7.08	4.4	UGL	LT		GO
			NNDPA	28-apr-1993	ES	7.08	3	UGL	LT		GO
WELL	MW014	UM18	PCB016	28-apr-1993	ES	7.08	21	UGL	ND	R	GO
			PCB221	28-apr-1993	ES	7.08	21	UGL	ND	R	GO
			PCB232	28-apr-1993	ES	7.08	21	UGL	ND	R	GO
			PCB242	28-apr-1993	ES	7.08	30	UGL	ND	R	GO
			PCB248	28-apr-1993	ES	7.08	30	UGL	ND	R	GO
			PCB254	28-apr-1993	ES	7.08	36	UGL	ND	R	GO
			PCB260	28-apr-1993	ES	7.08	36	UGL	ND	R	GO
			PCP	28-apr-1993	ES	7.08	18	UGL	LT		GO
			PHANTR	28-apr-1993	ES	7.08	0.5	UGL	LT		GO
			PHENOL	28-apr-1993	ES	7.08	9.2	UGL	LT		GO
			PPDDD	28-apr-1993	ES	7.08	4	UGL	ND	R	GO
			PPDDE	28-apr-1993	ES	7.08	4.7	UGL	ND	R	GO
			PPDDT	28-apr-1993	ES	7.08	9.2	UGL	ND	R	GO
			PYR	28-apr-1993	ES	7.08	2.8	UGL	LT		GO
			TXPHEN	28-apr-1993	ES	7.08	36	UGL	ND	R	GO
WELL	MW014	UM20	111TCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			112TCE	28-apr-1993	ES	0	1.2	UGL	LT		GO
			11DCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			11DCLE	28-apr-1993	ES	0	0.68	UGL	LT		GO
			12DCE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLP	28-apr-1993	ES	0	0.5	UGL	LT		GO
			2CLEVE	28-apr-1993	ES	0	0.71	UGL	LT		GO
			ACET	28-apr-1993	ES	0	13	UGL	LT		GO
			ACROLN	28-apr-1993	ES	0	100	UGL	ND	R	GO
			ACRYLO	28-apr-1993	ES	0	100	UGL	ND	R	GO
			BRDCLM	28-apr-1993	ES	0	0.59	UGL	LT		GO
			C13DCP	28-apr-1993	ES	0	0.58	UGL	LT		GO
			C2AVE	28-apr-1993	ES	0	8.3	UGL	LT		GO
			C2H3CL	28-apr-1993	ES	0	2.6	UGL	LT		GO
			C2H5CL	28-apr-1993	ES	0	1.9	UGL	LT		GO
			C6H6	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CCL3F	28-apr-1993	ES	0	1.4	UGL	LT		GO
			CCL4	28-apr-1993	ES	0	0.58	UGL	LT		GO
			CH2CL2	28-apr-1993	ES	0	2.3	UGL	LT		GO
			CH3BR	28-apr-1993	ES	0	5.8	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			CH3CL	28-apr-1993	ES	0	3.2	UGL	LT		GO
			CHBR3	28-apr-1993	ES	0	2.6	UGL	LT		GO
			CHCL3	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CL2BZ	28-apr-1993	ES	0	10	UGL	ND	R	GO
			CLC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			CS2	28-apr-1993	ES	0	0.5	UGL	LT		GO
			DBRCLM	28-apr-1993	ES	0	0.67	UGL	LT		GO
			ETC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEC6H5	28-apr-1993	ES	0	0.5	UGL	LT		GO
			MEK	28-apr-1993	ES	0	6.4	UGL	LT		GO
			MIBK	28-apr-1993	ES	0	3	UGL	LT		GO
			MNBK	28-apr-1993	ES	0	3.6	UGL	LT		GO
			STYR	28-apr-1993	ES	0	0.5	UGL	LT		GO
			T13DCP	28-apr-1993	ES	0	0.7	UGL	LT		GO
			TCLEA	28-apr-1993	ES	0	0.51	UGL	LT		GO
WELL	MW014	UM20	TCLEE	28-apr-1993	ES	0	1.6	UGL	LT		GO
			TRCLE	28-apr-1993	ES	0	0.5	UGL	LT		GO
			XYLEN	28-apr-1993	ES	0	0.84	UGL	LT		GO
WELL	MW016	00	OILGR	27-apr-1993	ES	7.49	168	UGL	LT		GO
			TPHC	27-apr-1993	ES	7.49	168	UGL	LT		GO
WELL	MW016	SB01	HG	27-apr-1993	ES	7.49	0.243	UGL	LT		GO
WELL	MW016	SD09	TL	27-apr-1993	ES	7.49	6.99	UGL	LT		GO
WELL	MW016	SD20	PB	27-apr-1993	ES	7.49	1.26	UGL	LT		GO
WELL	MW016	SD21	SE	27-apr-1993	ES	7.49	3.02	UGL	LT		GO
WELL	MW016	SD22	AS	27-apr-1993	ES	7.49	2.54	UGL	LT		GO
WELL	MW016	SS10	AG	27-apr-1993	ES	7.49	4.6	UGL	LT		GO
			AL	27-apr-1993	ES	7.49	141	UGL	LT		GO
			BA	27-apr-1993	ES	7.49	73.2	UGL			GO
			BE	27-apr-1993	ES	7.49	5	UGL	LT		GO
			CA	27-apr-1993	ES	7.49	243000	UGL			GO
			CD	27-apr-1993	ES	7.49	4.01	UGL	LT		GO
			CO	27-apr-1993	ES	7.49	25	UGL	LT		GO
			CR	27-apr-1993	ES	7.49	6.02	UGL	LT		GO
			CU	27-apr-1993	ES	7.49	8.09	UGL	LT		GO
			FE	27-apr-1993	ES	7.49	85.1	UGL			GO
			K	27-apr-1993	ES	7.49	673	UGL			GO
			MG	27-apr-1993	ES	7.49	64400	UGL			GO
			MN	27-apr-1993	ES	7.49	1710	UGL			GO
			NA	27-apr-1993	ES	7.49	436000	UGL			GO
			NI	27-apr-1993	ES	7.49	34.3	UGL	LT		GO
			SB	27-apr-1993	ES	7.49	38	UGL	LT		GO
			V	27-apr-1993	ES	7.49	11	UGL	LT		GO
			ZN	27-apr-1993	ES	7.49	21.1	UGL	LT		GO
WELL	MW016	TF18	CYN	27-apr-1993	ES	7.49	2.5	UGL	LT		GO
WELL	MW016	TF22	NIT	27-apr-1993	ES	7.49	10	UGL	LT		GO
WELL	MW016	TT10	CL	27-apr-1993	ES	7.49	1200000	UGL			GO
			SO4	27-apr-1993	ES	7.49	111000	UGL			GO
WELL	MW016	UH02	PCB016	27-apr-1993	ES	7.49	0.16	UGL	LT		GO
			PCB221	27-apr-1993	ES	7.49	0.16	UGL	ND	R	GO
			PCB232	27-apr-1993	ES	7.49	0.16	UGL	ND	R	GO
			PCB242	27-apr-1993	ES	7.49	0.19	UGL	ND	R	GO
			PCB248	27-apr-1993	ES	7.49	0.19	UGL	ND	R	GO
			PCB254	27-apr-1993	ES	7.49	0.19	UGL	ND	R	GO
			PCB260	27-apr-1993	ES	7.49	0.19	UGL	LT		GO
WELL	MW016	UH13	ABHC	27-apr-1993	ES	7.49	0.0385	UGL	LT		GO
WELL	MW016	UH13	ACLDAN	27-apr-1993	ES	7.49	0.075	UGL	ND	R	GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			AENSLF	27-apr-1993	ES	7.49	0.023	UGL	LT		GO
			ALDRN	27-apr-1993	ES	7.49	0.0918	UGL	LT		GO
			BBHC	27-apr-1993	ES	7.49	0.024	UGL	LT		GO
			BENSLF	27-apr-1993	ES	7.49	0.023	UGL	LT		GO
			DBHC	27-apr-1993	ES	7.49	0.0293	UGL	LT		GO
			DLDRN	27-apr-1993	ES	7.49	0.024	UGL	LT		GO
			ENDRN	27-apr-1993	ES	7.49	0.0238	UGL	LT		GO
			ENDRNA	27-apr-1993	ES	7.49	0.0285	UGL	LT		GO
			ENDRNK	27-apr-1993	ES	7.49	0.0285	UGL	ND	R	GO
			ESFSO4	27-apr-1993	ES	7.49	0.0786	UGL	LT		GO
			GCLDAN	27-apr-1993	ES	7.49	0.075	UGL	ND	R	GO
			HPCL	27-apr-1993	ES	7.49	0.0423	UGL	LT		GO
			HPCLE	27-apr-1993	ES	7.49	0.0245	UGL	LT		GO
			ISODR	27-apr-1993	ES	7.49	0.0562	UGL	LT		GO
			LIN	27-apr-1993	ES	7.49	0.0507	UGL	LT		GO
			MEXCLR	27-apr-1993	ES	7.49	0.057	UGL	LT		GO
			PPDDD	27-apr-1993	ES	7.49	0.0233	UGL	LT		GO
			PPDDE	27-apr-1993	ES	7.49	0.027	UGL	LT		GO
			PPDDT	27-apr-1993	ES	7.49	0.034	UGL	LT		GO
			TXPHEN	27-apr-1993	ES	7.49	1.35	UGL	LT		GO
WELL	MW016	UM18	124TCB	27-apr-1993	ES	7.49	1.8	UGL	LT		GO
			12DCLB	27-apr-1993	ES	7.49	1.7	UGL	LT		GO
			12DPH	27-apr-1993	ES	7.49	2	UGL	ND	R	GO
			13DCLB	27-apr-1993	ES	7.49	1.7	UGL	LT		GO
			14DCLB	27-apr-1993	ES	7.49	1.7	UGL	LT		GO
			245TCP	27-apr-1993	ES	7.49	5.2	UGL	LT		GO
			246TCP	27-apr-1993	ES	7.49	4.2	UGL	LT		GO
			24DCLP	27-apr-1993	ES	7.49	2.9	UGL	LT		GO
			24DMPN	27-apr-1993	ES	7.49	5.8	UGL	LT		GO
			24DNP	27-apr-1993	ES	7.49	21	UGL	LT		GO
			24DNT	27-apr-1993	ES	7.49	4.5	UGL	LT		GO
			26DNT	27-apr-1993	ES	7.49	0.79	UGL	LT		GO
			2CLP	27-apr-1993	ES	7.49	0.99	UGL	LT		GO
			2CNAP	27-apr-1993	ES	7.49	0.5	UGL	LT		GO
			2MNAP	27-apr-1993	ES	7.49	1.7	UGL	LT		GO
			2MP	27-apr-1993	ES	7.49	3.9	UGL	LT		GO
			2NANIL	27-apr-1993	ES	7.49	4.3	UGL	LT		GO
			2NP	27-apr-1993	ES	7.49	3.7	UGL	LT		GO
			33DCBD	27-apr-1993	ES	7.49	12	UGL	LT		GO
			3NANIL	27-apr-1993	ES	7.49	4.9	UGL	LT		GO
			46DN2C	27-apr-1993	ES	7.49	17	UGL	LT		GO
			4BRPPE	27-apr-1993	ES	7.49	4.2	UGL	LT		GO
			4CANIL	27-apr-1993	ES	7.49	7.3	UGL	LT		GO
			4CL3C	27-apr-1993	ES	7.49	4	UGL	LT		GO
			4CLPPE	27-apr-1993	ES	7.49	5.1	UGL	LT		GO
			4MP	27-apr-1993	ES	7.49	0.52	UGL	LT		GO
			4NANIL	27-apr-1993	ES	7.49	5.2	UGL	LT		GO
			4NP	27-apr-1993	ES	7.49	12	UGL	LT		GO
			ABHC	27-apr-1993	ES	7.49	4	UGL	ND	R	GO
			ACLDAN	27-apr-1993	ES	7.49	5.1	UGL	ND	R	GO
WELL	MW016	UM18	AENSLF	27-apr-1993	ES	7.49	9.2	UGL	ND	R	GO
			ALDRN	27-apr-1993	ES	7.49	4.7	UGL	ND	R	GO
			ANAPNE	27-apr-1993	ES	7.49	1.7	UGL	LT		GO
			ANAPYL	27-apr-1993	ES	7.49	0.5	UGL	LT		GO
			ANTRC	27-apr-1993	ES	7.49	0.5	UGL	LT		GO
			B2CEXM	27-apr-1993	ES	7.49	1.5	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			B2CIPE	27-apr-1993	ES	7.49	5.3	UGL	LT		GO
			B2CLEE	27-apr-1993	ES	7.49	1.9	UGL	LT		GO
			B2EHP	27-apr-1993	ES	7.49	4.8	UGL	LT		GO
			BAANTR	27-apr-1993	ES	7.49	1.6	UGL	LT		GO
			BAPYR	27-apr-1993	ES	7.49	4.7	UGL	LT		GO
			BBFANT	27-apr-1993	ES	7.49	5.4	UGL	LT		GO
			BBHC	27-apr-1993	ES	7.49	4	UGL	ND	R	GO
			BBZP	27-apr-1993	ES	7.49	3.4	UGL	LT		GO
			BENSLF	27-apr-1993	ES	7.49	9.2	UGL	ND	R	GO
			BENZID	27-apr-1993	ES	7.49	10	UGL	ND	R	GO
			BENZOA	27-apr-1993	ES	7.49	13	UGL	LT		GO
			BGHIPY	27-apr-1993	ES	7.49	6.1	UGL	LT		GO
			BKFANT	27-apr-1993	ES	7.49	0.87	UGL	LT		GO
			BZALC	27-apr-1993	ES	7.49	0.72	UGL	LT		GO
			CARBAZ	27-apr-1993	ES	7.49	0.5	UGL	ND	R	GO
			CHRY	27-apr-1993	ES	7.49	2.4	UGL	LT		GO
			CL6BZ	27-apr-1993	ES	7.49	1.6	UGL	LT		GO
			CL6CP	27-apr-1993	ES	7.49	8.6	UGL	LT		GO
			CL6ET	27-apr-1993	ES	7.49	1.5	UGL	LT		GO
			DBAHA	27-apr-1993	ES	7.49	6.5	UGL	LT		GO
			DBHC	27-apr-1993	ES	7.49	4	UGL	ND	R	GO
			DBZFUR	27-apr-1993	ES	7.49	1.7	UGL	LT		GO
			DEP	27-apr-1993	ES	7.49	2	UGL	LT		GO
			DLDRN	27-apr-1993	ES	7.49	4.7	UGL	ND	R	GO
			DMP	27-apr-1993	ES	7.49	1.5	UGL	LT		GO
			DNBP	27-apr-1993	ES	7.49	3.7	UGL	LT		GO
			DNOP	27-apr-1993	ES	7.49	15	UGL	LT		GO
			ENDRN	27-apr-1993	ES	7.49	7.6	UGL	ND	R	GO
			ENDRNA	27-apr-1993	ES	7.49	8	UGL	ND	R	GO
			ENDRNK	27-apr-1993	ES	7.49	8	UGL	ND	R	GO
			ESFSO4	27-apr-1993	ES	7.49	9.2	UGL	ND	R	GO
			FANT	27-apr-1993	ES	7.49	3.3	UGL	LT		GO
			FLRENE	27-apr-1993	ES	7.49	3.7	UGL	LT		GO
			GCLDAN	27-apr-1993	ES	7.49	5.1	UGL	ND	R	GO
			HCBD	27-apr-1993	ES	7.49	3.4	UGL	LT		GO
			HPCL	27-apr-1993	ES	7.49	2	UGL	ND	R	GO
			HPCLE	27-apr-1993	ES	7.49	5	UGL	ND	R	GO
			ICDPYR	27-apr-1993	ES	7.49	8.6	UGL	LT		GO
			ISOPHR	27-apr-1993	ES	7.49	4.8	UGL	LT		GO
			LIN	27-apr-1993	ES	7.49	4	UGL	ND	R	GO
			MEXCLR	27-apr-1993	ES	7.49	5.1	UGL	ND	R	GO
			NAP	27-apr-1993	ES	7.49	0.5	UGL	LT		GO
			NB	27-apr-1993	ES	7.49	0.5	UGL	LT		GO
			NNDMEA	27-apr-1993	ES	7.49	2	UGL	ND	R	GO
			NNDNPA	27-apr-1993	ES	7.49	4.4	UGL	LT		GO
			NNDPA	27-apr-1993	ES	7.49	3	UGL	LT		GO
WELL	MW016	UM18	PCB016	27-apr-1993	ES	7.49	21	UGL	ND	R	GO
			PCB221	27-apr-1993	ES	7.49	21	UGL	ND	R	GO
			PCB232	27-apr-1993	ES	7.49	21	UGL	ND	R	GO
			PCB242	27-apr-1993	ES	7.49	30	UGL	ND	R	GO
			PCB248	27-apr-1993	ES	7.49	30	UGL	ND	R	GO
			PCB254	27-apr-1993	ES	7.49	36	UGL	ND	R	GO
			PCB260	27-apr-1993	ES	7.49	36	UGL	ND	R	GO
			PCP	27-apr-1993	ES	7.49	18	UGL	LT		GO
			PHANTR	27-apr-1993	ES	7.49	0.5	UGL	LT		GO
			PHENOL	27-apr-1993	ES	7.49	9.2	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			PPDDD	27-apr-1993	ES	7.49	4	UGL	ND	R	GO
			PPDDE	27-apr-1993	ES	7.49	4.7	UGL	ND	R	GO
			PPDDT	27-apr-1993	ES	7.49	9.2	UGL	ND	R	GO
			PYR	27-apr-1993	ES	7.49	2.8	UGL	LT		GO
			TXPHEN	27-apr-1993	ES	7.49	36	UGL	ND	R	GO
			UNK539	27-apr-1993	ES	7.49	9	UGL		S	GO
			UNK565	27-apr-1993	ES	7.49	90	UGL		S	GO
			UNK568	27-apr-1993	ES	7.49	10	UGL		S	GO
WELL	MW016	UM20	111TCE	27-apr-1993	ES	0	5.6	UGL			GO
			112TCE	27-apr-1993	ES	0	1.2	UGL	LT		GO
			11DCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			11DCLE	27-apr-1993	ES	0	69	UGL			GO
			12DCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLP	27-apr-1993	ES	0	4.2	UGL			GO
			2CLEVE	27-apr-1993	ES	0	0.71	UGL	LT		GO
			ACET	27-apr-1993	ES	0	13	UGL	LT		GO
			ACROLN	27-apr-1993	ES	0	100	UGL	ND	R	GO
			ACRYLO	27-apr-1993	ES	0	100	UGL	ND	R	GO
			BRDCLM	27-apr-1993	ES	0	0.59	UGL	LT		GO
			C13DCP	27-apr-1993	ES	0	0.58	UGL	LT		GO
			C2AVE	27-apr-1993	ES	0	8.3	UGL	LT		GO
			C2H3CL	27-apr-1993	ES	0	2.6	UGL	LT		GO
			C2H5CL	27-apr-1993	ES	0	1.9	UGL	LT		GO
			C6H6	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CCL3F	27-apr-1993	ES	0	1.4	UGL	LT		GO
			CCL4	27-apr-1993	ES	0	0.58	UGL	LT		GO
			CH2CL2	27-apr-1993	ES	0	2.3	UGL	LT		GO
			CH3BR	27-apr-1993	ES	0	5.8	UGL	LT		GO
			CH3CL	27-apr-1993	ES	0	3.2	UGL	LT		GO
			CHBR3	27-apr-1993	ES	0	2.6	UGL	LT		GO
			CHCL3	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CL2BZ	27-apr-1993	ES	0	10	UGL	ND	R	GO
			CLC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CS2	27-apr-1993	ES	0	0.5	UGL	LT		GO
			DBRCLM	27-apr-1993	ES	0	0.67	UGL	LT		GO
			ETC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			MEC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			MEK	27-apr-1993	ES	0	6.4	UGL	LT		GO
			MIBK	27-apr-1993	ES	0	3	UGL	LT		GO
			MNBK	27-apr-1993	ES	0	3.6	UGL	LT		GO
WELL	MW016	UM20	STYR	27-apr-1993	ES	0	0.5	UGL	LT		GO
			T13DCP	27-apr-1993	ES	0	0.7	UGL	LT		GO
			TCLEA	27-apr-1993	ES	0	0.51	UGL	LT		GO
			TCLEE	27-apr-1993	ES	0	1.6	UGL	LT		GO
			TCLTFE	27-apr-1993	ES	0	20	UGL		S	GO
			TRCLE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			XYLEN	27-apr-1993	ES	0	0.84	UGL	LT		GO
WELL	MW018	00	OILGR	27-apr-1993	ES	7.62	170	UGL	LT		GO
			TPHC	27-apr-1993	ES	7.62	170	UGL	LT		GO
WELL	MW018	SB01	HG	27-apr-1993	ES	7.62	0.243	UGL	LT		GO
WELL	MW018	SD09	TL	27-apr-1993	ES	7.62	6.99	UGL	LT		GO
WELL	MW018	SD20	PB	27-apr-1993	ES	7.62	1.26	UGL	LT		GO
WELL	MW018	SD21	SE	27-apr-1993	ES	7.62	3.02	UGL	LT		GO
WELL	MW018	SD22	AS	27-apr-1993	ES	7.62	2.54	UGL	LT		GO
WELL	MW018	SS10	AG	27-apr-1993	ES	7.62	4.6	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			AL	27-apr-1993	ES	7.62	141	UGL	LT		GO
			BA	27-apr-1993	ES	7.62	113	UGL			GO
			BE	27-apr-1993	ES	7.62	5	UGL	LT		GO
			CA	27-apr-1993	ES	7.62	150000	UGL			GO
			CD	27-apr-1993	ES	7.62	4.01	UGL	LT		GO
			CO	27-apr-1993	ES	7.62	25	UGL	LT		GO
			CR	27-apr-1993	ES	7.62	6.02	UGL	LT		GO
			CU	27-apr-1993	ES	7.62	8.09	UGL	LT		GO
			FE	27-apr-1993	ES	7.62	38.8	UGL	LT		GO
			K	27-apr-1993	ES	7.62	6320	UGL			GO
			MG	27-apr-1993	ES	7.62	103000	UGL			GO
			MN	27-apr-1993	ES	7.62	2.75	UGL	LT		GO
			NA	27-apr-1993	ES	7.62	127000	UGL			GO
			NI	27-apr-1993	ES	7.62	34.3	UGL	LT		GO
			SB	27-apr-1993	ES	7.62	60.7	UGL			GO
			V	27-apr-1993	ES	7.62	13.5	UGL			GO
			ZN	27-apr-1993	ES	7.62	21.1	UGL	LT		GO
WELL	MW018	TF18	CYN	27-apr-1993	ES	7.62	2.5	UGL	LT		GO
WELL	MW018	TF22	NIT	27-apr-1993	ES	7.62	85.2	UGL			GO
WELL	MW018	TT10	CL	27-apr-1993	ES	7.62	520000	UGL			GO
			SO4	27-apr-1993	ES	7.62	183000	UGL			GO
WELL	MW018	UH02	PCB016	27-apr-1993	ES	7.62	0.16	UGL	LT		GO
			PCB221	27-apr-1993	ES	7.62	0.16	UGL	ND	R	GO
			PCB232	27-apr-1993	ES	7.62	0.16	UGL	ND	R	GO
			PCB242	27-apr-1993	ES	7.62	0.19	UGL	ND	R	GO
			PCB248	27-apr-1993	ES	7.62	0.19	UGL	ND	R	GO
WELL	MW018	UH02	PCB254	27-apr-1993	ES	7.62	0.19	UGL	ND	R	GO
			PCB260	27-apr-1993	ES	7.62	0.19	UGL	LT		GO
WELL	MW018	UH13	ABHC	27-apr-1993	ES	7.62	0.0385	UGL	LT		GO
			ACLDAN	27-apr-1993	ES	7.62	0.075	UGL	ND	R	GO
			AENSLF	27-apr-1993	ES	7.62	0.023	UGL	LT		GO
			ALDRN	27-apr-1993	ES	7.62	0.0918	UGL	LT		GO
			BBHC	27-apr-1993	ES	7.62	0.024	UGL	LT		GO
			BENSLF	27-apr-1993	ES	7.62	0.023	UGL	LT		GO
			DBHC	27-apr-1993	ES	7.62	0.0293	UGL	LT		GO
			DLDRN	27-apr-1993	ES	7.62	0.024	UGL	LT		GO
			ENDRN	27-apr-1993	ES	7.62	0.0238	UGL	LT		GO
			ENDRNA	27-apr-1993	ES	7.62	0.0285	UGL	LT		GO
			ENDRNK	27-apr-1993	ES	7.62	0.0285	UGL	ND	R	GO
			ESFSO4	27-apr-1993	ES	7.62	0.0786	UGL	LT		GO
			GCLDAN	27-apr-1993	ES	7.62	0.075	UGL	ND	R	GO
			HPCL	27-apr-1993	ES	7.62	0.0423	UGL	LT		GO
			HPCLE	27-apr-1993	ES	7.62	0.0245	UGL	LT		GO
			ISODR	27-apr-1993	ES	7.62	0.0562	UGL	LT		GO
			LIN	27-apr-1993	ES	7.62	0.0507	UGL	LT		GO
			MEXCLR	27-apr-1993	ES	7.62	0.057	UGL	LT		GO
			PPDDD	27-apr-1993	ES	7.62	0.0233	UGL	LT		GO
			PPDDE	27-apr-1993	ES	7.62	0.027	UGL	LT		GO
			PPDDT	27-apr-1993	ES	7.62	0.034	UGL	LT		GO
			TXPHEN	27-apr-1993	ES	7.62	1.35	UGL	LT		GO
WELL	MW018	UM18	124TCB	27-apr-1993	ES	7.62	1.8	UGL	LT		GO
			12DCLB	27-apr-1993	ES	7.62	1.7	UGL	LT		GO
			12DPH	27-apr-1993	ES	7.62	2	UGL	ND	R	GO
			13DCLB	27-apr-1993	ES	7.62	1.7	UGL	LT		GO
			14DCLB	27-apr-1993	ES	7.62	1.7	UGL	LT		GO
			245TCP	27-apr-1993	ES	7.62	5.2	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			246TCP	27-apr-1993	ES	7.62	4.2	UGL	LT		GO
			24DCLP	27-apr-1993	ES	7.62	2.9	UGL	LT		GO
			24DMPN	27-apr-1993	ES	7.62	5.8	UGL	LT		GO
			24DNP	27-apr-1993	ES	7.62	21	UGL	LT		GO
			24DNT	27-apr-1993	ES	7.62	4.5	UGL	LT		GO
			26DNT	27-apr-1993	ES	7.62	0.79	UGL	LT		GO
			2CLP	27-apr-1993	ES	7.62	0.99	UGL	LT		GO
			2CNAP	27-apr-1993	ES	7.62	0.5	UGL	LT		GO
			2MNAP	27-apr-1993	ES	7.62	1.7	UGL	LT		GO
			2MP	27-apr-1993	ES	7.62	3.9	UGL	LT		GO
			2NANIL	27-apr-1993	ES	7.62	4.3	UGL	LT		GO
			2NP	27-apr-1993	ES	7.62	3.7	UGL	LT		GO
			33DCBD	27-apr-1993	ES	7.62	12	UGL	LT		GO
			3NANIL	27-apr-1993	ES	7.62	4.9	UGL	LT		GO
			46DN2C	27-apr-1993	ES	7.62	17	UGL	LT		GO
			4BRPPE	27-apr-1993	ES	7.62	4.2	UGL	LT		GO
			4CANIL	27-apr-1993	ES	7.62	7.3	UGL	LT		GO
			4CL3C	27-apr-1993	ES	7.62	4	UGL	LT		GO
			4CLPPE	27-apr-1993	ES	7.62	5.1	UGL	LT		GO
			4MP	27-apr-1993	ES	7.62	0.52	UGL	LT		GO
WELL	MW018	UM18	4NANIL	27-apr-1993	ES	7.62	5.2	UGL	LT		GO
			4NP	27-apr-1993	ES	7.62	12	UGL	LT		GO
			ABHC	27-apr-1993	ES	7.62	4	UGL	ND	R	GO
			ACLDAN	27-apr-1993	ES	7.62	5.1	UGL	ND	R	GO
			AENSLF	27-apr-1993	ES	7.62	9.2	UGL	ND	R	GO
			ALDRN	27-apr-1993	ES	7.62	4.7	UGL	ND	R	GO
			ANAPNE	27-apr-1993	ES	7.62	1.7	UGL	LT		GO
			ANAPYL	27-apr-1993	ES	7.62	0.5	UGL	LT		GO
			ANTRC	27-apr-1993	ES	7.62	0.5	UGL	LT		GO
			B2CEXM	27-apr-1993	ES	7.62	1.5	UGL	LT		GO
			B2CIPE	27-apr-1993	ES	7.62	5.3	UGL	LT		GO
			B2CLEE	27-apr-1993	ES	7.62	1.9	UGL	LT		GO
			B2EHP	27-apr-1993	ES	7.62	4.8	UGL	LT		GO
			BAANTR	27-apr-1993	ES	7.62	1.6	UGL	LT		GO
			BAPYR	27-apr-1993	ES	7.62	4.7	UGL	LT		GO
			BBFANT	27-apr-1993	ES	7.62	5.4	UGL	LT		GO
			BBHC	27-apr-1993	ES	7.62	4	UGL	ND	R	GO
			BBZP	27-apr-1993	ES	7.62	3.4	UGL	LT		GO
			BENSLF	27-apr-1993	ES	7.62	9.2	UGL	ND	R	GO
			BENZID	27-apr-1993	ES	7.62	10	UGL	ND	R	GO
			BENZOA	27-apr-1993	ES	7.62	13	UGL	LT		GO
			BGHIPY	27-apr-1993	ES	7.62	6.1	UGL	LT		GO
			BKFANT	27-apr-1993	ES	7.62	0.87	UGL	LT		GO
			BZALC	27-apr-1993	ES	7.62	0.72	UGL	LT		GO
			CARBAZ	27-apr-1993	ES	7.62	0.5	UGL	ND	R	GO
			CHRY	27-apr-1993	ES	7.62	2.4	UGL	LT		GO
			CL6BZ	27-apr-1993	ES	7.62	1.6	UGL	LT		GO
			CL6CP	27-apr-1993	ES	7.62	8.6	UGL	LT		GO
			CL6ET	27-apr-1993	ES	7.62	1.5	UGL	LT		GO
			DBAHA	27-apr-1993	ES	7.62	6.5	UGL	LT		GO
			DBHC	27-apr-1993	ES	7.62	4	UGL	ND	R	GO
			DBZFUR	27-apr-1993	ES	7.62	1.7	UGL	LT		GO
			DEP	27-apr-1993	ES	7.62	2	UGL	LT		GO
			DLDRN	27-apr-1993	ES	7.62	4.7	UGL	ND	R	GO
			DMP	27-apr-1993	ES	7.62	1.5	UGL	LT		GO
			DNBP	27-apr-1993	ES	7.62	3.7	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			DNOP	27-apr-1993	ES	7.62	15	UGL	LT		GO
			ENDRN	27-apr-1993	ES	7.62	7.6	UGL	ND	R	GO
			ENDRNA	27-apr-1993	ES	7.62	8	UGL	ND	R	GO
			ENDRNK	27-apr-1993	ES	7.62	8	UGL	ND	R	GO
			ESFSO4	27-apr-1993	ES	7.62	9.2	UGL	ND	R	GO
			FANT	27-apr-1993	ES	7.62	3.3	UGL	LT		GO
			FLRENE	27-apr-1993	ES	7.62	3.7	UGL	LT		GO
			GCLDAN	27-apr-1993	ES	7.62	5.1	UGL	ND	R	GO
			HCBD	27-apr-1993	ES	7.62	3.4	UGL	LT		GO
			HPCL	27-apr-1993	ES	7.62	2	UGL	ND	R	GO
			HPCLE	27-apr-1993	ES	7.62	5	UGL	ND	R	GO
			ICDPYR	27-apr-1993	ES	7.62	8.6	UGL	LT		GO
			ISOPHR	27-apr-1993	ES	7.62	4.8	UGL	LT		GO
			LIN	27-apr-1993	ES	7.62	4	UGL	ND	R	GO
			MEXCLR	27-apr-1993	ES	7.62	5.1	UGL	ND	R	GO
			NAP	27-apr-1993	ES	7.62	0.5	UGL	LT		GO
WELL	MW018	UM18	NB	27-apr-1993	ES	7.62	0.5	UGL	LT		GO
			NNDMEA	27-apr-1993	ES	7.62	2	UGL	ND	R	GO
			NNDNPA	27-apr-1993	ES	7.62	4.4	UGL	LT		GO
			NNDPA	27-apr-1993	ES	7.62	3	UGL	LT		GO
			PCB016	27-apr-1993	ES	7.62	21	UGL	ND	R	GO
			PCB221	27-apr-1993	ES	7.62	21	UGL	ND	R	GO
			PCB232	27-apr-1993	ES	7.62	21	UGL	ND	R	GO
			PCB242	27-apr-1993	ES	7.62	30	UGL	ND	R	GO
			PCB248	27-apr-1993	ES	7.62	30	UGL	ND	R	GO
			PCB254	27-apr-1993	ES	7.62	36	UGL	ND	R	GO
			PCB260	27-apr-1993	ES	7.62	36	UGL	ND	R	GO
			PCP	27-apr-1993	ES	7.62	18	UGL	LT		GO
			PHANTR	27-apr-1993	ES	7.62	0.5	UGL	LT		GO
			PHENOL	27-apr-1993	ES	7.62	9.2	UGL	LT		GO
			PPDDD	27-apr-1993	ES	7.62	4	UGL	ND	R	GO
			PPDDE	27-apr-1993	ES	7.62	4.7	UGL	ND	R	GO
			PPDDT	27-apr-1993	ES	7.62	9.2	UGL	ND	R	GO
			PYR	27-apr-1993	ES	7.62	2.8	UGL	LT		GO
			TXPHEN	27-apr-1993	ES	7.62	36	UGL	ND	R	GO
WELL	MW018	UM20	111TCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			112TCE	27-apr-1993	ES	0	1.2	UGL	LT		GO
			11DCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			11DCLE	27-apr-1993	ES	0	0.68	UGL	LT		GO
			12DCE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			12DCLP	27-apr-1993	ES	0	0.5	UGL	LT		GO
			2CLEVE	27-apr-1993	ES	0	0.71	UGL	LT		GO
			ACET	27-apr-1993	ES	0	13	UGL	LT		GO
			ACROLN	27-apr-1993	ES	0	100	UGL	ND	R	GO
			ACRYLO	27-apr-1993	ES	0	100	UGL	ND	R	GO
			BRDCLM	27-apr-1993	ES	0	0.59	UGL	LT		GO
			C13DCP	27-apr-1993	ES	0	0.58	UGL	LT		GO
			C2AVE	27-apr-1993	ES	0	8.3	UGL	LT		GO
			C2H3CL	27-apr-1993	ES	0	2.6	UGL	LT		GO
			C2H5CL	27-apr-1993	ES	0	1.9	UGL	LT		GO
			C6H6	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CCL3F	27-apr-1993	ES	0	1.4	UGL	LT		GO
			CCL4	27-apr-1993	ES	0	0.58	UGL	LT		GO
			CH2CL2	27-apr-1993	ES	0	2.3	UGL	LT		GO
			CH3BR	27-apr-1993	ES	0	5.8	UGL	LT		GO

Variable Query Chemical Report
Installation: Detroit Arsenal, MI (DA)
Media File Code: CGW Sampling Date Range: 01-mar-93 to 01-jun-93
Minimum: X: 331500 Y: 4706000
Maximum: X: 333322 Y: 4707375

Site Type	Site ID	Method	Test Name	Sample Date	Lab	Deptl	Value	Unit Meas.	Meas Bool.	Flag Codes	Prog.
			CH3CL	27-apr-1993	ES	0	3.2	UGL	LT		GO
			CHBR3	27-apr-1993	ES	0	2.6	UGL	LT		GO
			CHCL3	27-apr-1993	ES	0	0.88	UGL			GO
			CL2BZ	27-apr-1993	ES	0	10	UGL	ND	R	GO
			CLC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			CS2	27-apr-1993	ES	0	0.5	UGL	LT		GO
			DBRCLM	27-apr-1993	ES	0	0.67	UGL	LT		GO
			ETC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			MEC6H5	27-apr-1993	ES	0	0.5	UGL	LT		GO
			MEK	27-apr-1993	ES	0	6.4	UGL	LT		GO
			MIBK	27-apr-1993	ES	0	3	UGL	LT		GO
WELL	MW018	UM20	MNBK	27-apr-1993	ES	0	3.6	UGL	LT		GO
			STYR	27-apr-1993	ES	0	0.5	UGL	LT		GO
			T13DCP	27-apr-1993	ES	0	0.7	UGL	LT		GO
			TCLEA	27-apr-1993	ES	0	0.51	UGL	LT		GO
			TCLEE	27-apr-1993	ES	0	1.6	UGL	LT		GO
			TRCLE	27-apr-1993	ES	0	0.5	UGL	LT		GO
			XYLEN	27-apr-1993	ES	0	0.84	UGL	LT		GO

CHEMICAL QUALITY CONTROL REPORT

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
ES	BYR		NIT	M	0	TF22	19-feb-1993	LT	10	UGL			
			NIT	S	20	TF22	19-feb-1993		19	UGL			
			NIT	S	150	TF22	19-feb-1993		156	UGL			
			NIT	S	150	TF22	19-feb-1993		165	UGL			
		MW018	NIT	N	150	TF22	19-feb-1993		150	UGL			GO
		MW018	NIT	N	150	TF22	19-feb-1993		160	UGL			GO
		RBLK-1	NIT	R	0	TF22	19-feb-1993	LT	10	UGL			GO
ES	BYXA		NIT	M	0	TF22	14-may-1993	LT	10	UGL			
			NIT	S	20	TF22	14-may-1993		20.3	UGL			
			NIT	S	150	TF22	14-may-1993		149	UGL			
			NIT	S	150	TF22	14-may-1993		152	UGL			
		RBLK-1	NIT	R	0	TF22	14-may-1993	LT	10	UGL			GO
ES	CAJ		CYN	M	0	TF18	08-feb-1993	LT	2.5	UGL			
			CYN	S	9.2	TF18	08-feb-1993		8.61	UGL			
			CYN	S	22.9	TF18	08-feb-1993		23.2	UGL			
			CYN	S	22.9	TF18	08-feb-1993		23.7	UGL			
		MW001	CYN	N	22.9	TF18	08-feb-1993		23.4	UGL			GO
		RBLK-1	CYN	R	0	TF18	08-feb-1993	LT	2.5	UGL			GO
ES	CAOA		CYN	M	0	TF18	07-may-1993	LT	2.5	UGL			
			CYN	S	9.2	TF18	07-may-1993		9.34	UGL			
			CYN	S	22.9	TF18	07-may-1993		23.4	UGL			
			CYN	S	22.9	TF18	07-may-1993		23.6	UGL			
		MW-018	CYN	N	28.7	TF18	07-may-1993		29.4	UGL			GO
		RBLK-1	CYN	R	0	TF18	07-may-1993	LT	2.5	UGL			GO
ES	CBZ		AS	M	0	SD22	23-feb-1993	LT	2.54	UGL			
			AS	S	5	SD22	23-feb-1993		5.4	UGL			
			AS	S	75	SD22	23-feb-1993		73.7	UGL			
			AS	S	75	SD22	23-feb-1993		75.4	UGL			
		RBLK-1	AS	R	0	SD22	23-feb-1993	LT	2.54	UGL			GO
ES	CCV		TL	M	0	SD09	23-feb-1993	LT	6.99	UGL			
			TL	S	10	SD09	23-feb-1993		10.8	UGL			
			TL	S	20	SD09	23-feb-1993		20.5	UGL			
			TL	S	20	SD09	23-feb-1993		21.5	UGL			
		RBLK-1	TL	R	0	SD09	24-feb-1993	LT	6.99	UGL			GO
ES	CDV		HG	M	0	SB01	08-feb-1993	LT	0.243	UGL			
			HG	S	0.5	SB01	08-feb-1993		0.525	UGL			
			HG	S	2.5	SB01	08-feb-1993		2.65	UGL			
			HG	S	2.5	SB01	08-feb-1993		2.69	UGL			
		RBLK-1	HG	R	0	SB01	08-feb-1993	LT	0.243	UGL			GO
ES	CEP		CL10BP	S	1.3	UH02	08-feb-1993		0.92	UGL	T		
			CL10BP	S	1.3	UH02	08-feb-1993		0.95	UGL	T		
			PCB016	M	0	UH02	08-feb-1993	LT	0.16	UGL			
			PCB016	S	3.75	UH02	08-feb-1993		2.3	UGL			
			PCB221	M	0	UH02	08-feb-1993	ND	0.16	UGL	R		
ES	CEP		PCB232	M	0	UH02	08-feb-1993	ND	0.16	UGL	R		
			PCB242	M	0	UH02	08-feb-1993	ND	0.19	UGL	R		
			PCB248	M	0	UH02	08-feb-1993	ND	0.19	UGL	R		
			PCB254	M	0	UH02	08-feb-1993	ND	0.19	UGL	R		
			PCB260	M	0	UH02	08-feb-1993	LT	0.19	UGL			
			PCB260	S	3.75	UH02	08-feb-1993		2.7	UGL			
		MW001	CL10BP	N	1.3	UH02	08-feb-1993		0.85	UGL	T		GO
		MW002	CL10BP	N	1.3	UH02	08-feb-1993		0.77	UGL	T		GO
		MW004	CL10BP	N	1.3	UH02	08-feb-1993		0.86	UGL	T		GO
		MW010	CL10BP	N	1.3	UH02	08-feb-1993		0.95	UGL	T		GO
		MW014	CL10BP	N	1.3	UH02	08-feb-1993		0.49	UGL	T		GO
		MW016	CL10BP	N	1.3	UH02	08-feb-1993		0.97	UGL	T		GO
		MW018	CL10BP	N	1.3	UH02	08-feb-1993		0.86	UGL	T		GO
		RBLK-1	CL10BP	N	1.3	UH02	08-feb-1993		0.77	UGL	T		GO
		RBLK-1	PCB016	R	0	UH02	08-feb-1993	LT	0.16	UGL			GO
		RBLK-1	PCB221	R	0	UH02	08-feb-1993	ND	0.16	UGL	R		GO
		RBLK-1	PCB232	R	0	UH02	08-feb-1993	ND	0.16	UGL	R		GO
		RBLK-1	PCB242	R	0	UH02	08-feb-1993	ND	0.19	UGL	R		GO
		RBLK-1	PCB248	R	0	UH02	08-feb-1993	ND	0.19	UGL	R		GO
		RBLK-1	PCB254	R	0	UH02	08-feb-1993	ND	0.19	UGL	R		GO
		RBLK-1	PCB260	R	0	UH02	08-feb-1993	LT	0.19	UGL			GO
ES	CKS		124TCB	M	0	UM18	01-feb-1993	LT	1.8	UGL			
			12DCLB	M	0	UM18	01-feb-1993	LT	1.7	UGL			
			12DPH	M	0	UM18	01-feb-1993	ND	2	UGL	R		

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- QC --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			13DCLB	M	0	UM18	01-feb-1993	LT	1.7	UGL			
			14DCLB	M	0	UM18	01-feb-1993	LT	1.7	UGL			
			245TCP	M	0	UM18	01-feb-1993	LT	5.2	UGL			
			246TBP	S	100	UM18	01-feb-1993		66	UGL			
			246TCP	M	0	UM18	01-feb-1993	LT	4.2	UGL			
			24DCLP	M	0	UM18	01-feb-1993	LT	2.9	UGL			
			24DMPN	M	0	UM18	01-feb-1993	LT	5.8	UGL			
			24DNP	M	0	UM18	01-feb-1993	LT	21	UGL			
			24DNT	M	0	UM18	01-feb-1993	LT	4.5	UGL			
			26DNT	M	0	UM18	01-feb-1993	LT	0.79	UGL			
			2CLP	M	0	UM18	01-feb-1993	LT	0.99	UGL			
			2CNAP	M	0	UM18	01-feb-1993	LT	0.5	UGL			
			2FBP	S	50	UM18	01-feb-1993		38	UGL			
			2FP	S	100	UM18	01-feb-1993		58	UGL			
			2MNAP	M	0	UM18	01-feb-1993	LT	1.7	UGL			
			2MP	M	0	UM18	01-feb-1993	LT	3.9	UGL			
			2NANIL	M	0	UM18	01-feb-1993	LT	4.3	UGL			
			2NP	M	0	UM18	01-feb-1993	LT	3.7	UGL			
			33DCBD	M	0	UM18	01-feb-1993	LT	12	UGL			
			3NANIL	M	0	UM18	01-feb-1993	LT	4.9	UGL			
			46DN2C	M	0	UM18	01-feb-1993	LT	17	UGL			
			4BRPPE	M	0	UM18	01-feb-1993	LT	4.2	UGL			
			4CANIL	M	0	UM18	01-feb-1993	LT	7.3	UGL			
			4CL3C	M	0	UM18	01-feb-1993	LT	4	UGL			
			4CLPPE	M	0	UM18	01-feb-1993	LT	5.1	UGL			
			4MP	M	0	UM18	01-feb-1993	LT	0.52	UGL			
ES	CKS		4NANIL	M	0	UM18	01-feb-1993	LT	5.2	UGL			
			4NP	M	0	UM18	01-feb-1993	LT	12	UGL			
			ABHC	M	0	UM18	01-feb-1993	ND	4	UGL	R		
			ACLDAN	M	0	UM18	01-feb-1993	ND	5.1	UGL	R		
			AENSLF	M	0	UM18	01-feb-1993	ND	9.2	UGL	R		
			ALDRN	M	0	UM18	01-feb-1993	ND	4.7	UGL	R		
			ANAPNE	M	0	UM18	01-feb-1993	LT	1.7	UGL			
			ANAPYL	M	0	UM18	01-feb-1993	LT	0.5	UGL			
			ANTRC	M	0	UM18	01-feb-1993	LT	0.5	UGL			
			B2CEXM	M	0	UM18	01-feb-1993	LT	1.5	UGL			
			B2CIPE	M	0	UM18	01-feb-1993	LT	5.3	UGL			
			B2CLEE	M	0	UM18	01-feb-1993	LT	1.9	UGL			
			B2EHP	M	0	UM18	01-feb-1993	LT	4.8	UGL			
			BAANTR	M	0	UM18	01-feb-1993	LT	1.6	UGL			
			BAPYR	M	0	UM18	01-feb-1993	LT	4.7	UGL			
			BBFANT	M	0	UM18	01-feb-1993	LT	5.4	UGL			
			BBHC	M	0	UM18	01-feb-1993	ND	4	UGL	R		
			BBZP	M	0	UM18	01-feb-1993	LT	3.4	UGL			
			BENSLF	M	0	UM18	01-feb-1993	ND	9.2	UGL	R		
			BENZID	M	0	UM18	01-feb-1993	ND	10	UGL	R		
			BENZOA	M	0	UM18	01-feb-1993	LT	13	UGL			
			BGHIPY	M	0	UM18	01-feb-1993	LT	6.1	UGL			
			BKFANT	M	0	UM18	01-feb-1993	LT	0.87	UGL			
			BZALC	M	0	UM18	01-feb-1993	LT	0.72	UGL			
			CARBAZ	M	0	UM18	01-feb-1993	ND	0.5	UGL	R		
			CHRY	M	0	UM18	01-feb-1993	LT	2.4	UGL			
			CL6BZ	M	0	UM18	01-feb-1993	LT	1.6	UGL			
			CL6CP	M	0	UM18	01-feb-1993	LT	8.6	UGL			
			CL6ET	M	0	UM18	01-feb-1993	LT	1.5	UGL			
			DBAHA	M	0	UM18	01-feb-1993	LT	6.5	UGL			
			DBHC	M	0	UM18	01-feb-1993	ND	4	UGL	R		
			DBZFUR	M	0	UM18	01-feb-1993	LT	1.7	UGL			
			DEP	M	0	UM18	01-feb-1993	LT	2	UGL			
			DLDRN	M	0	UM18	01-feb-1993	ND	4.7	UGL	R		
			DMP	M	0	UM18	01-feb-1993	LT	1.5	UGL			
			DNBP	M	0	UM18	01-feb-1993	LT	3.7	UGL			
			DNOP	M	0	UM18	01-feb-1993	LT	15	UGL			
			ENDRN	M	0	UM18	01-feb-1993	ND	7.6	UGL	R		
			ENDRNA	M	0	UM18	01-feb-1993	ND	8	UGL	R		
			ENDRNK	M	0	UM18	01-feb-1993	ND	8	UGL	R		
			ESFSO4	M	0	UM18	01-feb-1993	ND	9.2	UGL	R		
			FANT	M	0	UM18	01-feb-1993	LT	3.3	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

			Test	Method	--- Q C ---			Meas.		Unit		Data	
Lab	Lot	F Samp No	Name	Type	Spike	Code	Analysis Date	Bool	Value	Meas	Flags	Qualifiers	Prog
			FLRENE	M	0	UM18	01-feb-1993	LT	3.7	UGL			
			GCLDAN	M	0	UM18	01-feb-1993	ND	5.1	UGL	R		
			HCBD	M	0	UM18	01-feb-1993	LT	3.4	UGL			
			HPCL	M	0	UM18	01-feb-1993	ND	2	UGL	R		
			HPCLE	M	0	UM18	01-feb-1993	ND	5	UGL	R		
			ICDPYR	M	0	UM18	01-feb-1993	LT	8.6	UGL			
			ISOPHR	M	0	UM18	01-feb-1993	LT	4.8	UGL			
			LIN	M	0	UM18	01-feb-1993	ND	4	UGL	R		
			MEXCLR	M	0	UM18	01-feb-1993	ND	5.1	UGL	R		
ES	CKS		NAP	M	0	UM18	01-feb-1993	LT	0.5	UGL			
			NB	M	0	UM18	01-feb-1993	LT	0.5	UGL			
			NBD5	S	50	UM18	01-feb-1993		36	UGL			
			NNDMEA	M	0	UM18	01-feb-1993	ND	2	UGL	R		
			NNDNPA	M	0	UM18	01-feb-1993	LT	4.4	UGL			
			NNDPA	M	0	UM18	01-feb-1993	LT	3	UGL			
			PCB016	M	0	UM18	01-feb-1993	ND	21	UGL	R		
			PCB221	M	0	UM18	01-feb-1993	ND	21	UGL	R		
			PCB232	M	0	UM18	01-feb-1993	ND	21	UGL	R		
			PCB242	M	0	UM18	01-feb-1993	ND	30	UGL	R		
			PCB248	M	0	UM18	01-feb-1993	ND	30	UGL	R		
			PCB254	M	0	UM18	01-feb-1993	ND	36	UGL	R		
			PCB260	M	0	UM18	01-feb-1993	ND	36	UGL	R		
			PCP	M	0	UM18	01-feb-1993	LT	18	UGL			
			PHANTR	M	0	UM18	01-feb-1993	LT	0.5	UGL			
			PHEND6	S	100	UM18	01-feb-1993		41	UGL			
			PHENOL	M	0	UM18	01-feb-1993	LT	9.2	UGL			
			PPDDD	M	0	UM18	01-feb-1993	ND	4	UGL	R		
			PPDDE	M	0	UM18	01-feb-1993	ND	4.7	UGL	R		
			PPDDT	M	0	UM18	01-feb-1993	ND	9.2	UGL	R		
			PYR	M	0	UM18	01-feb-1993	LT	2.8	UGL			
			TRPD14	S	50	UM18	01-feb-1993		51	UGL			
			TXPHEN	M	0	UM18	01-feb-1993	ND	36	UGL	R		
		RBLK-1	124TCB	R	0	UM18	01-feb-1993	LT	1.8	UGL			GO
		RBLK-1	12DCLB	R	0	UM18	01-feb-1993	LT	1.7	UGL			GO
		RBLK-1	12DPH	R	0	UM18	01-feb-1993	ND	2	UGL	R		GO
		RBLK-1	13DCLB	R	0	UM18	01-feb-1993	LT	1.7	UGL			GO
		RBLK-1	14DCLB	R	0	UM18	01-feb-1993	LT	1.7	UGL			GO
		RBLK-1	245TCP	R	0	UM18	01-feb-1993	LT	5.2	UGL			GO
		RBLK-1	246TBP	N	100	UM18	01-feb-1993		48	UGL			GO
		RBLK-1	246TCP	R	0	UM18	01-feb-1993	LT	4.2	UGL			GO
		RBLK-1	24DCLP	R	0	UM18	01-feb-1993	LT	2.9	UGL			GO
		RBLK-1	24DMPN	R	0	UM18	01-feb-1993	LT	5.8	UGL			GO
		RBLK-1	24DNP	R	0	UM18	01-feb-1993	LT	21	UGL			GO
		RBLK-1	24DNT	R	0	UM18	01-feb-1993	LT	4.5	UGL			GO
		RBLK-1	26DNT	R	0	UM18	01-feb-1993	LT	0.79	UGL			GO
		RBLK-1	2CLP	R	0	UM18	01-feb-1993	LT	0.99	UGL			GO
		RBLK-1	2CNAP	R	0	UM18	01-feb-1993	LT	0.5	UGL			GO
		RBLK-1	2FBP	N	50	UM18	01-feb-1993		36	UGL			GO
		RBLK-1	2FP	N	100	UM18	01-feb-1993		75	UGL			GO
		RBLK-1	2MNAP	R	0	UM18	01-feb-1993	LT	1.7	UGL			GO
		RBLK-1	2MP	R	0	UM18	01-feb-1993	LT	3.9	UGL			GO
		RBLK-1	2NANIL	R	0	UM18	01-feb-1993	LT	4.3	UGL			GO
		RBLK-1	2NP	R	0	UM18	01-feb-1993	LT	3.7	UGL			GO
		RBLK-1	33DCBD	R	0	UM18	01-feb-1993	LT	12	UGL			GO
		RBLK-1	3NANIL	R	0	UM18	01-feb-1993	LT	4.9	UGL			GO
		RBLK-1	46DN2C	R	0	UM18	01-feb-1993	LT	17	UGL			GO
		RBLK-1	4BRPPE	R	0	UM18	01-feb-1993	LT	4.2	UGL			GO
		RBLK-1	4CANIL	R	0	UM18	01-feb-1993	LT	7.3	UGL			GO
		RBLK-1	4CL3C	R	0	UM18	01-feb-1993	LT	4	UGL			GO
		RBLK-1	4CLPPE	R	0	UM18	01-feb-1993	LT	5.1	UGL			GO
ES	CKS	RBLK-1	4MP	R	0	UM18	01-feb-1993	LT	0.52	UGL			GO
		RBLK-1	4NANIL	R	0	UM18	01-feb-1993	LT	5.2	UGL			GO
		RBLK-1	4NP	R	0	UM18	01-feb-1993	LT	12	UGL			GO
		RBLK-1	ABHC	R	0	UM18	01-feb-1993	ND	4	UGL	R		GO
		RBLK-1	ACLDAN	R	0	UM18	01-feb-1993	ND	5.1	UGL	R		GO
		RBLK-1	AENSLF	R	0	UM18	01-feb-1993	ND	9.2	UGL	R		GO
		RBLK-1	ALDRN	R	0	UM18	01-feb-1993	ND	4.7	UGL	R		GO
		RBLK-1	ANAPNE	R	0	UM18	01-feb-1993	LT	1.7	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		RBLK-1	ANAPYL	R	0	UM18	01-feb-1993	LT	0.5	UGL			GO
		RBLK-1	ANTRC	R	0	UM18	01-feb-1993	LT	0.5	UGL			GO
		RBLK-1	B2CEXM	R	0	UM18	01-feb-1993	LT	1.5	UGL			GO
		RBLK-1	B2CIPE	R	0	UM18	01-feb-1993	LT	5.3	UGL			GO
		RBLK-1	B2CLEE	R	0	UM18	01-feb-1993	LT	1.9	UGL			GO
		RBLK-1	B2EHP	R	0	UM18	01-feb-1993	LT	4.8	UGL			GO
		RBLK-1	BAANTR	R	0	UM18	01-feb-1993	LT	1.6	UGL			GO
		RBLK-1	BAPYR	R	0	UM18	01-feb-1993	LT	4.7	UGL			GO
		RBLK-1	BBFANT	R	0	UM18	01-feb-1993	LT	5.4	UGL			GO
		RBLK-1	BBHC	R	0	UM18	01-feb-1993	ND	4	UGL	R		GO
		RBLK-1	BBZP	R	0	UM18	01-feb-1993	LT	3.4	UGL			GO
		RBLK-1	BENSLF	R	0	UM18	01-feb-1993	ND	9.2	UGL	R		GO
		RBLK-1	BENZID	R	0	UM18	01-feb-1993	ND	10	UGL	R		GO
		RBLK-1	BENZOA	R	0	UM18	01-feb-1993	LT	13	UGL			GO
		RBLK-1	BGHIPY	R	0	UM18	01-feb-1993	LT	6.1	UGL			GO
		RBLK-1	BKFANT	R	0	UM18	01-feb-1993	LT	0.87	UGL			GO
		RBLK-1	BZALC	R	0	UM18	01-feb-1993	LT	0.72	UGL			GO
		RBLK-1	CARBAZ	R	0	UM18	01-feb-1993	ND	1.5	UGL	R		GO
		RBLK-1	CHRY	R	0	UM18	01-feb-1993	LT	2.4	UGL			GO
		RBLK-1	CL6BZ	R	0	UM18	01-feb-1993	LT	1.6	UGL			GO
		RBLK-1	CL6CP	R	0	UM18	01-feb-1993	LT	8.6	UGL			GO
		RBLK-1	CL6ET	R	0	UM18	01-feb-1993	LT	1.5	UGL			GO
		RBLK-1	DBAHA	R	0	UM18	01-feb-1993	LT	6.5	UGL			GO
		RBLK-1	DBHC	R	0	UM18	01-feb-1993	ND	4	UGL	R		GO
		RBLK-1	DBZFUR	R	0	UM18	01-feb-1993	LT	1.7	UGL			GO
		RBLK-1	DEP	R	0	UM18	01-feb-1993	LT	2	UGL			GO
		RBLK-1	DLDRN	R	0	UM18	01-feb-1993	ND	4.7	UGL	R		GO
		RBLK-1	DMP	R	0	UM18	01-feb-1993	LT	1.5	UGL			GO
		RBLK-1	DNBP	R	0	UM18	01-feb-1993	LT	3.7	UGL			GO
		RBLK-1	DNOP	R	0	UM18	01-feb-1993	LT	15	UGL			GO
		RBLK-1	ENDRN	R	0	UM18	01-feb-1993	ND	7.6	UGL	R		GO
		RBLK-1	ENDRNA	R	0	UM18	01-feb-1993	ND	8	UGL	R		GO
		RBLK-1	ENDRNK	R	0	UM18	01-feb-1993	ND	8	UGL	R		GO
		RBLK-1	ESFSO4	R	0	UM18	01-feb-1993	ND	9.2	UGL	R		GO
		RBLK-1	FANT	R	0	UM18	01-feb-1993	LT	3.3	UGL			GO
		RBLK-1	FLRENE	R	0	UM18	01-feb-1993	LT	3.7	UGL			GO
		RBLK-1	GCLDAN	R	0	UM18	01-feb-1993	ND	5.1	UGL	R		GO
		RBLK-1	HCBD	R	0	UM18	01-feb-1993	LT	3.4	UGL			GO
		RBLK-1	HPCL	R	0	UM18	01-feb-1993	ND	2	UGL	R		GO
		RBLK-1	HPCLE	R	0	UM18	01-feb-1993	ND	5	UGL	R		GO
		RBLK-1	ICDPYR	R	0	UM18	01-feb-1993	LT	8.6	UGL			GO
		RBLK-1	ISOPHR	R	0	UM18	01-feb-1993	LT	4.8	UGL			GO
		RBLK-1	LIN	R	0	UM18	01-feb-1993	ND	4	UGL	R		GO
ES	CKS	RBLK-1	MEXCLR	R	0	UM18	01-feb-1993	ND	5.1	UGL	R		GO
		RBLK-1	NAP	R	0	UM18	01-feb-1993	LT	0.5	UGL			GO
		RBLK-1	NB	R	0	UM18	01-feb-1993	LT	0.5	UGL			GO
		RBLK-1	NBD5	N	50	UM18	01-feb-1993		33	UGL			GO
		RBLK-1	NNDMEA	R	0	UM18	01-feb-1993	ND	2	UGL	R		GO
		RBLK-1	NNDNPA	R	0	UM18	01-feb-1993	LT	4.4	UGL			GO
		RBLK-1	NNDPA	R	0	UM18	01-feb-1993	LT	3	UGL			GO
		RBLK-1	PCB016	R	0	UM18	01-feb-1993	ND	21	UGL	R		GO
		RBLK-1	PCB221	R	0	UM18	01-feb-1993	ND	21	UGL	R		GO
		RBLK-1	PCB232	R	0	UM18	01-feb-1993	ND	21	UGL	R		GO
		RBLK-1	PCB242	R	0	UM18	01-feb-1993	ND	30	UGL	R		GO
		RBLK-1	PCB248	R	0	UM18	01-feb-1993	ND	30	UGL	R		GO
		RBLK-1	PCB254	R	0	UM18	01-feb-1993	ND	36	UGL	R		GO
		RBLK-1	PCB260	R	0	UM18	01-feb-1993	ND	36	UGL	R		GO
		RBLK-1	PCP	R	0	UM18	01-feb-1993	LT	18	UGL			GO
		RBLK-1	PHANTR	R	0	UM18	01-feb-1993	LT	0.5	UGL			GO
		RBLK-1	PHEND6	N	100	UM18	01-feb-1993		72	UGL			GO
		RBLK-1	PHENOL	R	0	UM18	01-feb-1993	LT	9.2	UGL			GO
		RBLK-1	PPDDD	R	0	UM18	01-feb-1993	ND	4	UGL	R		GO
		RBLK-1	PPDDE	R	0	UM18	01-feb-1993	ND	4.7	UGL	R		GO
		RBLK-1	PPDDT	R	0	UM18	01-feb-1993	ND	9.2	UGL	R		GO
		RBLK-1	PYR	R	0	UM18	01-feb-1993	LT	2.8	UGL			GO
		RBLK-1	TRPD14	N	50	UM18	01-feb-1993		51	UGL			GO
		RBLK-1	TXPHEN	R	0	UM18	01-feb-1993	ND	36	UGL	R		GO
ES	CKT		124TCB	M	0	UM18	10-feb-1993	LT	1.8	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- QC --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			12DCLB	M	0	UM18	10-feb-1993	LT	1.7	UGL			
			12DPH	M	0	UM18	10-feb-1993	ND	2	UGL	R		
			13DCLB	M	0	UM18	10-feb-1993	LT	1.7	UGL			
			14DCLB	M	0	UM18	10-feb-1993	LT	1.7	UGL			
			245TCP	M	0	UM18	10-feb-1993	LT	5.2	UGL			
			246TBP	S	100	UM18	10-feb-1993		67	UGL			
			246TCP	M	0	UM18	10-feb-1993	LT	4.2	UGL			
			24DCLP	M	0	UM18	10-feb-1993	LT	2.9	UGL			
			24DMPN	M	0	UM18	10-feb-1993	LT	5.8	UGL			
			24DNP	M	0	UM18	10-feb-1993	LT	21	UGL			
			24DNT	M	0	UM18	10-feb-1993	LT	4.5	UGL			
			26DNT	M	0	UM18	10-feb-1993	LT	0.79	UGL			
			2CLP	M	0	UM18	10-feb-1993	LT	0.99	UGL			
			2CNAP	M	0	UM18	10-feb-1993	LT	0.5	UGL			
			2FBP	S	50	UM18	10-feb-1993		36	UGL			
			2FP	S	100	UM18	10-feb-1993		66	UGL			
			2MNAP	M	0	UM18	10-feb-1993	LT	1.7	UGL			
			2MP	M	0	UM18	10-feb-1993	LT	3.9	UGL			
			2NANIL	M	0	UM18	10-feb-1993	LT	4.3	UGL			
			2NP	M	0	UM18	10-feb-1993	LT	3.7	UGL			
			33DCBD	M	0	UM18	10-feb-1993	LT	12	UGL			
			3NANIL	M	0	UM18	10-feb-1993	LT	4.9	UGL			
			46DN2C	M	0	UM18	10-feb-1993	LT	17	UGL			
			4BRPPE	M	0	UM18	10-feb-1993	LT	4.2	UGL			
			4CANIL	M	0	UM18	10-feb-1993	LT	7.3	UGL			
ES	CKT		4CL3C	M	0	UM18	10-feb-1993	LT	4	UGL			
			4CLPPE	M	0	UM18	10-feb-1993	LT	5.1	UGL			
			4MP	M	0	UM18	10-feb-1993	LT	0.52	UGL			
			4NANIL	M	0	UM18	10-feb-1993	LT	5.2	UGL			
			4NP	M	0	UM18	10-feb-1993	LT	12	UGL			
			ABHC	M	0	UM18	10-feb-1993	ND	4	UGL	R		
			ACLDAN	M	0	UM18	10-feb-1993	ND	5.1	UGL	R		
			AENSLF	M	0	UM18	10-feb-1993	ND	9.2	UGL	R		
			ALDRN	M	0	UM18	10-feb-1993	ND	4.7	UGL	R		
			ANAPNE	M	0	UM18	10-feb-1993	LT	1.7	UGL			
			ANAPYL	M	0	UM18	10-feb-1993	LT	0.5	UGL			
			ANTRC	M	0	UM18	10-feb-1993	LT	0.5	UGL			
			B2CEXM	M	0	UM18	10-feb-1993	LT	1.5	UGL			
			B2CIPE	M	0	UM18	10-feb-1993	LT	5.3	UGL			
			B2CLEE	M	0	UM18	10-feb-1993	LT	1.9	UGL			
			B2EHP	M	0	UM18	10-feb-1993	LT	4.8	UGL			
			BAANTR	M	0	UM18	10-feb-1993	LT	1.6	UGL			
			BAPYR	M	0	UM18	10-feb-1993	LT	4.7	UGL			
			BBFANT	M	0	UM18	10-feb-1993	LT	5.4	UGL			
			BBHC	M	0	UM18	10-feb-1993	ND	4	UGL	R		
			BBZP	M	0	UM18	10-feb-1993	LT	3.4	UGL			
			BENSLF	M	0	UM18	10-feb-1993	ND	9.2	UGL	R		
			BENZID	M	0	UM18	10-feb-1993	ND	10	UGL	R		
			BENZOA	M	0	UM18	10-feb-1993	LT	13	UGL			
			BGHIPY	M	0	UM18	10-feb-1993	LT	6.1	UGL			
			BKFANT	M	0	UM18	10-feb-1993	LT	0.87	UGL			
			BZALC	M	0	UM18	10-feb-1993	LT	0.72	UGL			
			CARBAZ	M	0	UM18	10-feb-1993	ND	0.5	UGL	R		
			CHRY	M	0	UM18	10-feb-1993	LT	2.4	UGL			
			CL6BZ	M	0	UM18	10-feb-1993	LT	1.6	UGL			
			CL6CP	M	0	UM18	10-feb-1993	LT	8.6	UGL			
			CL6ET	M	0	UM18	10-feb-1993	LT	1.5	UGL			
			DBAHA	M	0	UM18	10-feb-1993	LT	6.5	UGL			
			DBHC	M	0	UM18	10-feb-1993	ND	4	UGL	R		
			DBZFUR	M	0	UM18	10-feb-1993	LT	1.7	UGL			
			DEP	M	0	UM18	10-feb-1993	LT	2	UGL			
			DLDRN	M	0	UM18	10-feb-1993	ND	4.7	UGL	R		
			DMP	M	0	UM18	10-feb-1993	LT	1.5	UGL			
			DNBP	M	0	UM18	10-feb-1993	LT	3.7	UGL			
			DNOP	M	0	UM18	10-feb-1993	LT	15	UGL			
			ENDRN	M	0	UM18	10-feb-1993	ND	7.6	UGL	R		
			ENDRNA	M	0	UM18	10-feb-1993	ND	8	UGL	R		
			ENDRNK	M	0	UM18	10-feb-1993	ND	8	UGL	R		

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			ESFSO4	M	0	UM18	10-feb-1993	ND	9.2	UGL	R		
			FANT	M	0	UM18	10-feb-1993	LT	3.3	UGL			
			FLRENE	M	0	UM18	10-feb-1993	LT	3.7	UGL			
			GCLDAN	M	0	UM18	10-feb-1993	ND	5.1	UGL	R		
			HCBD	M	0	UM18	10-feb-1993	LT	3.4	UGL			
			HPCL	M	0	UM18	10-feb-1993	ND	2	UGL	R		
			HPCLE	M	0	UM18	10-feb-1993	ND	5	UGL	R		
			ICDPYR	M	0	UM18	10-feb-1993	LT	8.6	UGL			
ES	CKT		ISOPHR	M	0	UM18	10-feb-1993	LT	4.8	UGL			
			LIN	M	0	UM18	10-feb-1993	ND	4	UGL	R		
			MEXCLR	M	0	UM18	10-feb-1993	ND	5.1	UGL	R		
			NAP	M	0	UM18	10-feb-1993	LT	0.5	UGL			
			NB	M	0	UM18	10-feb-1993	LT	0.5	UGL			
			NBD5	S	50	UM18	10-feb-1993		41	UGL			
			NNDMEA	M	0	UM18	10-feb-1993	ND	2	UGL	R		
			NNDNPA	M	0	UM18	10-feb-1993	LT	4.4	UGL			
			NNDPA	M	0	UM18	10-feb-1993	LT	3	UGL			
			PCB016	M	0	UM18	10-feb-1993	ND	21	UGL	R		
			PCB221	M	0	UM18	10-feb-1993	ND	21	UGL	R		
			PCB232	M	0	UM18	10-feb-1993	ND	21	UGL	R		
			PCB242	M	0	UM18	10-feb-1993	ND	30	UGL	R		
			PCB248	M	0	UM18	10-feb-1993	ND	30	UGL	R		
			PCB254	M	0	UM18	10-feb-1993	ND	36	UGL	R		
			PCB260	M	0	UM18	10-feb-1993	ND	36	UGL	R		
			PCP	M	0	UM18	10-feb-1993	LT	18	UGL			
			PHANTR	M	0	UM18	10-feb-1993	LT	0.5	UGL			
			PHEND6	S	100	UM18	10-feb-1993		49	UGL			
			PHENOL	M	0	UM18	10-feb-1993	LT	9.2	UGL			
			PPDDD	M	0	UM18	10-feb-1993	ND	4	UGL	R		
			PPDDE	M	0	UM18	10-feb-1993	ND	4.7	UGL	R		
			PPDDT	M	0	UM18	10-feb-1993	ND	9.2	UGL	R		
			PYR	M	0	UM18	10-feb-1993	LT	2.8	UGL			
			TRPD14	S	50	UM18	10-feb-1993		54	UGL			
			TXPHEN	M	0	UM18	10-feb-1993	ND	36	UGL	R		
		MW001	246TBP	N	100	UM18	10-feb-1993		71	UGL			GO
		MW001	2FBP	N	50	UM18	10-feb-1993		45	UGL			GO
		MW001	2FP	N	100	UM18	10-feb-1993		99	UGL			GO
		MW001	NBD5	N	50	UM18	10-feb-1993		45	UGL			GO
		MW001	PHEND6	N	100	UM18	10-feb-1993		120	UGL			GO
		MW001	TRPD14	N	50	UM18	10-feb-1993		64	UGL			GO
		MW002	246TBP	N	100	UM18	10-feb-1993		71	UGL			GO
		MW002	2FBP	N	50	UM18	10-feb-1993		44	UGL			GO
		MW002	2FP	N	100	UM18	10-feb-1993		110	UGL			GO
		MW002	NBD5	N	50	UM18	10-feb-1993		44	UGL			GO
		MW002	PHEND6	N	100	UM18	10-feb-1993		110	UGL			GO
		MW002	TRPD14	N	50	UM18	10-feb-1993		59	UGL			GO
		MW004	246TBP	N	100	UM18	10-feb-1993		63	UGL			GO
		MW004	2FBP	N	50	UM18	10-feb-1993		44	UGL			GO
		MW004	2FP	N	100	UM18	10-feb-1993		91	UGL			GO
		MW004	NBD5	N	50	UM18	10-feb-1993		41	UGL			GO
		MW004	PHEND6	N	100	UM18	10-feb-1993		94	UGL			GO
		MW004	TRPD14	N	50	UM18	10-feb-1993		56	UGL			GO
		MW010	246TBP	N	100	UM18	10-feb-1993		75	UGL			GO
		MW010	2FBP	N	50	UM18	10-feb-1993		43	UGL			GO
		MW010	2FP	N	100	UM18	10-feb-1993		100	UGL			GO
		MW010	NBD5	N	50	UM18	10-feb-1993		44	UGL			GO
		MW010	PHEND6	N	100	UM18	10-feb-1993		110	UGL			GO
		MW010	TRPD14	N	50	UM18	10-feb-1993		60	UGL			GO
		MW014	246TBP	N	100	UM18	10-feb-1993		61	UGL			GO
ES	CKT	MW014	2FBP	N	50	UM18	10-feb-1993		45	UGL			GO
		MW014	2FP	N	100	UM18	10-feb-1993		99	UGL			GO
		MW014	NBD5	N	50	UM18	10-feb-1993		45	UGL			GO
		MW014	PHEND6	N	100	UM18	10-feb-1993		100	UGL			GO
		MW014	TRPD14	N	50	UM18	10-feb-1993		60	UGL			GO
		MW016	246TBP	N	100	UM18	10-feb-1993		19	UGL			GO
		MW016	2FBP	N	50	UM18	10-feb-1993		45	UGL			GO
		MW016	2FP	N	100	UM18	10-feb-1993	LT	17	UGL			GO
		MW016	NBD5	N	50	UM18	10-feb-1993		45	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		MW016	PHEND6	N	100	UM18	10-feb-1993	LT	36	UGL			GO
		MW016	TRPD14	N	50	UM18	10-feb-1993		59	UGL			GO
		MW018	246TBP	N	100	UM18	10-feb-1993		57	UGL			GO
		MW018	2FBP	N	50	UM18	10-feb-1993		35	UGL			GO
		MW018	2FP	N	100	UM18	10-feb-1993		120	UGL			GO
		MW018	NBD5	N	50	UM18	10-feb-1993		20	UGL			GO
		MW018	PHEND6	N	100	UM18	10-feb-1993		100	UGL			GO
		MW018	TRPD14	N	50	UM18	10-feb-1993		74	UGL			GO
ES	CMC		111TCE	M	0	UM20	02-dec-1992		1.8	UGL			
			112TCE	M	0	UM20	02-dec-1992	LT	1.2	UGL			
			11DCE	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			11DCLE	M	0	UM20	02-dec-1992	LT	0.68	UGL			
			12DCD4	S	50	UM20	02-dec-1992		48	UGL			
			12DCE	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			12DCLE	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			12DCLP	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			2CLEVE	M	0	UM20	02-dec-1992	LT	0.71	UGL			
			4BFB	S	50	UM20	02-dec-1992		51	UGL			
			ACET	M	0	UM20	02-dec-1992	LT	13	UGL			
			ACROLN	M	0	UM20	02-dec-1992	ND	100	UGL	R		
			ACRYLO	M	0	UM20	02-dec-1992	ND	100	UGL	R		
			BRDCLM	M	0	UM20	02-dec-1992	LT	0.59	UGL			
			C13DCP	M	0	UM20	02-dec-1992	LT	0.58	UGL			
			C2AVE	M	0	UM20	02-dec-1992	LT	8.3	UGL			
			C2H3CL	M	0	UM20	02-dec-1992	LT	2.6	UGL			
			C2H5CL	M	0	UM20	02-dec-1992	LT	1.9	UGL			
			C6H6	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			CCL3F	M	0	UM20	02-dec-1992	LT	1.4	UGL			
			CCL4	M	0	UM20	02-dec-1992	LT	0.58	UGL			
			CH2CL2	M	0	UM20	02-dec-1992	LT	2.3	UGL			
			CH3BR	M	0	UM20	02-dec-1992	LT	5.8	UGL			
			CH3CL	M	0	UM20	02-dec-1992	LT	3.2	UGL			
			CHBR3	M	0	UM20	02-dec-1992	LT	2.6	UGL			
			CHCL3	M	0	UM20	02-dec-1992		0.83	UGL			
			CL2BZ	M	0	UM20	02-dec-1992	ND	10	UGL	R		
			CLC6H5	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			CS2	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			DBRCLM	M	0	UM20	02-dec-1992	LT	0.67	UGL			
			ETC6H5	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			MEC6D8	S	50	UM20	02-dec-1992		49	UGL			
			MEC6H5	M	0	UM20	02-dec-1992	LT	0.5	UGL			
ES	CMC		MEK	M	0	UM20	02-dec-1992	LT	6.4	UGL			
			MIBK	M	0	UM20	02-dec-1992	LT	3	UGL			
			MNBK	M	0	UM20	02-dec-1992	LT	3.6	UGL			
			STYR	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			T13DCP	M	0	UM20	02-dec-1992	LT	0.7	UGL			
			TCLEA	M	0	UM20	02-dec-1992	LT	0.51	UGL			
			TCLEE	M	0	UM20	02-dec-1992	LT	1.6	UGL			
			TRCLE	M	0	UM20	02-dec-1992	LT	0.5	UGL			
			XYLEN	M	0	UM20	02-dec-1992	LT	0.84	UGL			
		DAWA*3	12DCD4	N	50	UM20	02-dec-1992		56	UGL			GO
		DAWA*3	4BFB	N	50	UM20	02-dec-1992		45	UGL			GO
		DAWA*3	MEC6D8	N	50	UM20	02-dec-1992		47	UGL			GO
		DAWA*4	111TCE	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	112TCE	T	0	UM20	02-dec-1992	LT	1.2	UGL			GO
		DAWA*4	11DCE	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	11DCLE	T	0	UM20	02-dec-1992	LT	0.68	UGL			GO
		DAWA*4	12DCD4	N	50	UM20	02-dec-1992		56	UGL			GO
		DAWA*4	12DCE	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	12DCLE	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	12DCLP	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	2CLEVE	T	0	UM20	02-dec-1992	LT	0.71	UGL			GO
		DAWA*4	4BFB	N	50	UM20	02-dec-1992		47	UGL			GO
		DAWA*4	ACET	T	0	UM20	02-dec-1992	LT	13	UGL			GO
		DAWA*4	ACROLN	T	0	UM20	02-dec-1992	ND	100	UGL	R		GO
		DAWA*4	ACRYLO	T	0	UM20	02-dec-1992	ND	100	UGL	R		GO
		DAWA*4	BRDCLM	T	0	UM20	02-dec-1992	LT	0.59	UGL			GO
		DAWA*4	C13DCP	T	0	UM20	02-dec-1992	LT	0.58	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		DAWA*4	C2AVE	T	0	UM20	02-dec-1992	LT	8.3	UGL			GO
		DAWA*4	C2H3CL	T	0	UM20	02-dec-1992	LT	2.6	UGL			GO
		DAWA*4	C2H5CL	T	0	UM20	02-dec-1992	LT	1.9	UGL			GO
		DAWA*4	C6H6	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	CCL3F	T	0	UM20	02-dec-1992	LT	1.4	UGL			GO
		DAWA*4	CCL4	T	0	UM20	02-dec-1992	LT	0.58	UGL			GO
		DAWA*4	CH2CL2	T	0	UM20	02-dec-1992	LT	2.3	UGL			GO
		DAWA*4	CH3BR	T	0	UM20	02-dec-1992	LT	5.8	UGL			GO
		DAWA*4	CH3CL	T	0	UM20	02-dec-1992	LT	3.2	UGL			GO
		DAWA*4	CHBR3	T	0	UM20	02-dec-1992	LT	2.6	UGL			GO
		DAWA*4	CHCL3	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	CL2BZ	T	0	UM20	02-dec-1992	ND	10	UGL	R		GO
		DAWA*4	CLC6H5	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	CS2	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	DBRCLM	T	0	UM20	02-dec-1992	LT	0.67	UGL			GO
		DAWA*4	ETC6H5	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	MEC6D8	N	50	UM20	02-dec-1992		47	UGL			GO
		DAWA*4	MEC6H5	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	MEK	T	0	UM20	02-dec-1992	LT	6.4	UGL			GO
		DAWA*4	MIBK	T	0	UM20	02-dec-1992	LT	3	UGL			GO
		DAWA*4	MNBK	T	0	UM20	02-dec-1992	LT	3.6	UGL			GO
		DAWA*4	STYR	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	T13DCP	T	0	UM20	02-dec-1992	LT	0.7	UGL			GO
		DAWA*4	TCLEA	T	0	UM20	02-dec-1992	LT	0.51	UGL			GO
ES	CMC	DAWA*4	TCLEE	T	0	UM20	02-dec-1992	LT	1.6	UGL			GO
		DAWA*4	TRCLE	T	0	UM20	02-dec-1992	LT	0.5	UGL			GO
		DAWA*4	XYLEN	T	0	UM20	02-dec-1992	LT	0.84	UGL			GO
ES	CMF		111TCE	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			112TCE	M	0	UM20	15-dec-1992	LT	1.2	UGL			
			11DCE	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			11DCLE	M	0	UM20	15-dec-1992	LT	0.68	UGL			
			12DCD4	S	50	UM20	15-dec-1992		48	UGL			
			12DCE	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			12DCLE	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			12DCLP	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			2CLEVE	M	0	UM20	15-dec-1992	LT	0.71	UGL			
			4BFB	S	50	UM20	15-dec-1992		49	UGL			
			ACET	M	0	UM20	15-dec-1992	LT	13	UGL			
			ACROLN	M	0	UM20	15-dec-1992	ND	100	UGL	R		
			ACRYLO	M	0	UM20	15-dec-1992	ND	100	UGL	R		
			BRDCLM	M	0	UM20	15-dec-1992	LT	0.59	UGL			
			C13DCP	M	0	UM20	15-dec-1992	LT	0.58	UGL			
			C2AVE	M	0	UM20	15-dec-1992	LT	8.3	UGL			
			C2H3CL	M	0	UM20	15-dec-1992	LT	2.6	UGL			
			C2H5CL	M	0	UM20	15-dec-1992	LT	1.9	UGL			
			C6H6	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			CCL3F	M	0	UM20	15-dec-1992	LT	1.4	UGL			
			CCL4	M	0	UM20	15-dec-1992	LT	0.58	UGL			
			CH2CL2	M	0	UM20	15-dec-1992	LT	2.3	UGL			
			CH3BR	M	0	UM20	15-dec-1992	LT	5.8	UGL			
			CH3CL	M	0	UM20	15-dec-1992	LT	3.2	UGL			
			CHBR3	M	0	UM20	15-dec-1992	LT	2.6	UGL			
			CHCL3	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			CL2BZ	M	0	UM20	15-dec-1992	ND	10	UGL	R		
			CLC6H5	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			CS2	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			DBRCLM	M	0	UM20	15-dec-1992	LT	0.67	UGL			
			ETC6H5	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			MEC6D8	S	50	UM20	15-dec-1992		49	UGL			
			MEC6H5	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			MEK	M	0	UM20	15-dec-1992	LT	6.4	UGL			
			MIBK	M	0	UM20	15-dec-1992	LT	3	UGL			
			MNBK	M	0	UM20	15-dec-1992	LT	3.6	UGL			
			STYR	M	0	UM20	15-dec-1992	LT	0.5	UGL			
			T13DCP	M	0	UM20	15-dec-1992	LT	0.7	UGL			
			TCLEA	M	0	UM20	15-dec-1992	LT	0.51	UGL			
			TCLEE	M	0	UM20	15-dec-1992	LT	1.6	UGL			
			TRCLE	M	0	UM20	15-dec-1992	LT	0.5	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			XYLEN	M	0	UM20	15-dec-1992	LT	0.84	UGL			
		DAWA*5	111TCE	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	112TCE	T	0	UM20	15-dec-1992	LT	1.2	UGL			GO
		DAWA*5	11DCE	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	11DCLE	T	0	UM20	15-dec-1992	LT	0.68	UGL			GO
		DAWA*5	12DCD4	N	50	UM20	15-dec-1992		56	UGL			GO
ES	CMF	DAWA*5	12DCE	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	12DCLE	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	12DCLP	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	2CLEVE	T	0	UM20	15-dec-1992	LT	0.71	UGL			GO
		DAWA*5	4BFB	N	50	UM20	15-dec-1992		44	UGL			GO
		DAWA*5	ACET	T	0	UM20	15-dec-1992	LT	13	UGL			GO
		DAWA*5	ACROLN	T	0	UM20	15-dec-1992	ND	100	UGL	R		GO
		DAWA*5	ACRYLO	T	0	UM20	15-dec-1992	ND	100	UGL	R		GO
		DAWA*5	BRDCLM	T	0	UM20	15-dec-1992	LT	0.59	UGL			GO
		DAWA*5	C13DCP	T	0	UM20	15-dec-1992	LT	0.58	UGL			GO
		DAWA*5	C2AVE	T	0	UM20	15-dec-1992	LT	8.3	UGL			GO
		DAWA*5	C2H3CL	T	0	UM20	15-dec-1992	LT	2.6	UGL			GO
		DAWA*5	C2H5CL	T	0	UM20	15-dec-1992	LT	1.9	UGL			GO
		DAWA*5	C6H6	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	CCL3F	T	0	UM20	15-dec-1992	LT	1.4	UGL			GO
		DAWA*5	CCL4	T	0	UM20	15-dec-1992	LT	0.58	UGL			GO
		DAWA*5	CH2CL2	T	0	UM20	15-dec-1992	LT	2.3	UGL			GO
		DAWA*5	CH3BR	T	0	UM20	15-dec-1992	LT	5.8	UGL			GO
		DAWA*5	CH3CL	T	0	UM20	15-dec-1992	LT	3.2	UGL			GO
		DAWA*5	CHBR3	T	0	UM20	15-dec-1992	LT	2.6	UGL			GO
		DAWA*5	CHCL3	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	CL2BZ	T	0	UM20	15-dec-1992	ND	10	UGL	R		GO
		DAWA*5	CLC6H5	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	CS2	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	DBRCLM	T	0	UM20	15-dec-1992	LT	0.67	UGL			GO
		DAWA*5	ETC6H5	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	MEC6D8	N	50	UM20	15-dec-1992		45	UGL			GO
		DAWA*5	MEC6H5	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	MEK	T	0	UM20	15-dec-1992	LT	6.4	UGL			GO
		DAWA*5	MIBK	T	0	UM20	15-dec-1992	LT	3	UGL			GO
		DAWA*5	MNBK	T	0	UM20	15-dec-1992	LT	3.6	UGL			GO
		DAWA*5	STYR	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	T13DCP	T	0	UM20	15-dec-1992	LT	0.7	UGL			GO
		DAWA*5	TCLEA	T	0	UM20	15-dec-1992	LT	0.51	UGL			GO
		DAWA*5	TCLEE	T	0	UM20	15-dec-1992	LT	1.6	UGL			GO
		DAWA*5	TRCLE	T	0	UM20	15-dec-1992	LT	0.5	UGL			GO
		DAWA*5	XYLEN	T	0	UM20	15-dec-1992	LT	0.84	UGL			GO
ES	COM		SE	M	0	SD21	24-feb-1993	LT	3.02	UGL			
			SE	S	5	SD21	24-feb-1993		5.1	UGL			
			SE	S	75	SD21	24-feb-1993		81.4	UGL			
			SE	S	75	SD21	24-feb-1993		81.6	UGL			
		RBLK-1	SE	R	0	SD21	24-feb-1993	LT	3.02	UGL			GO
ES	CXI		ABHC	M	0	UH13	09-feb-1993	LT	0.039	UGL			
			ACLDAN	M	0	UH13	09-feb-1993	ND	0.075	UGL	R		
			AENSLF	M	0	UH13	09-feb-1993	LT	0.023	UGL			
			AENSLF	S	0.5	UH13	09-feb-1993		0.44	UGL			
			ALDRN	M	0	UH13	09-feb-1993	LT	0.092	UGL			
			ALDRN	S	0.5	UH13	09-feb-1993		0.193	UGL			
			BBHC	M	0	UH13	09-feb-1993	LT	0.024	UGL			
ES	CXI		BENSLF	M	0	UH13	09-feb-1993	LT	0.023	UGL			
			BENSLF	S	0.5	UH13	09-feb-1993		0.422	UGL			
			CL10BP	S	1.25	UH13	09-feb-1993		0.83	UGL	T		
			CL10BP	S	1.25	UH13	09-feb-1993		1	UGL	T		
			CL4XYL	S	1.25	UH13	09-feb-1993		0.447	UGL	T		
			CL4XYL	S	1.25	UH13	09-feb-1993		0.535	UGL	T		
			DBHC	M	0	UH13	09-feb-1993	LT	0.029	UGL			
			DLDRN	M	0	UH13	09-feb-1993	LT	0.024	UGL			
			DLDRN	S	0.5	UH13	09-feb-1993		0.423	UGL			
			ENDRN	M	0	UH13	09-feb-1993	LT	0.024	UGL			
			ENDRN	S	0.5	UH13	09-feb-1993		0.46	UGL			
			ENDRNA	M	0	UH13	09-feb-1993	LT	0.029	UGL			
			ENDRNK	M	0	UH13	09-feb-1993	ND	0.029	UGL	R		

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			ESFSO4	M	0	UH13	09-feb-1993	LT	0.079	UGL			
			GCLDAN	M	0	UH13	09-feb-1993	ND	0.075	UGL	R		
			HPCL	M	0	UH13	09-feb-1993	LT	0.042	UGL			
			HPCL	S	0.5	UH13	09-feb-1993		0.269	UGL			
			HPCLE	M	0	UH13	09-feb-1993	LT	0.025	UGL			
			ISODR	M	0	UH13	09-feb-1993	LT	0.056	UGL			
			ISODR	S	1	UH13	09-feb-1993		0.466	UGL			
			LIN	M	0	UH13	09-feb-1993	LT	0.051	UGL			
			LIN	S	0.5	UH13	09-feb-1993		0.354	UGL			
			MEXCLR	M	0	UH13	09-feb-1993	LT	0.057	UGL			
			MEXCLR	S	1	UH13	09-feb-1993		0.969	UGL			
			PPDDD	M	0	UH13	09-feb-1993	LT	0.023	UGL			
			PPDDE	M	0	UH13	09-feb-1993	LT	0.027	UGL			
			PPDDT	M	0	UH13	09-feb-1993	LT	0.034	UGL			
			PPDDT	S	0.5	UH13	09-feb-1993		0.443	UGL			
			TXPHEN	M	0	UH13	09-feb-1993	LT	1.35	UGL			
		MW001	CL10BP	N	1.25	UH13	09-feb-1993		1	UGL	T		GO
		MW001	CL4XYL	N	1.25	UH13	09-feb-1993		0.744	UGL	T		GO
		MW002	CL10BP	N	1.25	UH13	09-feb-1993		1.1	UGL	T		GO
		MW002	CL4XYL	N	1.25	UH13	09-feb-1993		0.716	UGL	T		GO
		MW004	CL10BP	N	1.25	UH13	09-feb-1993		0.82	UGL	T		GO
		MW004	CL4XYL	N	1.25	UH13	09-feb-1993		0.736	UGL	T		GO
		MW010	CL10BP	N	1.25	UH13	09-feb-1993		1.3	UGL	T		GO
		MW010	CL4XYL	N	1.25	UH13	09-feb-1993		0.818	UGL	T		GO
		MW014	CL10BP	N	1.25	UH13	09-feb-1993		0.6	UGL	T		GO
		MW014	CL4XYL	N	1.25	UH13	09-feb-1993		0.617	UGL	T		GO
		MW016	CL10BP	N	1.25	UH13	09-feb-1993		1.5	UGL	T		GO
		MW016	CL4XYL	N	1.25	UH13	09-feb-1993		0.729	UGL	T		GO
		MW018	CL10BP	N	1.25	UH13	09-feb-1993		1	UGL	T		GO
		MW018	CL4XYL	N	1.25	UH13	09-feb-1993		0.713	UGL	T		GO
		RBLK-1	ABHC	R	0	UH13	09-feb-1993	LT	0.039	UGL			GO
		RBLK-1	ACLDAN	R	0	UH13	09-feb-1993	ND	0.075	UGL	R		GO
		RBLK-1	AENSLF	R	0	UH13	09-feb-1993	LT	0.023	UGL			GO
		RBLK-1	ALDRN	R	0	UH13	09-feb-1993	LT	0.092	UGL			GO
		RBLK-1	BBHC	R	0	UH13	09-feb-1993	LT	0.024	UGL			GO
		RBLK-1	BENSLF	R	0	UH13	09-feb-1993	LT	0.023	UGL			GO
		RBLK-1	CL10BP	N	1.25	UH13	09-feb-1993		0.98	UGL	T		GO
		RBLK-1	CL4XYL	N	1.25	UH13	09-feb-1993		0.789	UGL	T		GO
ES	CXI	RBLK-1	DBHC	R	0	UH13	09-feb-1993	LT	0.029	UGL			GO
		RBLK-1	DLDRN	R	0	UH13	09-feb-1993	LT	0.024	UGL			GO
		RBLK-1	ENDRN	R	0	UH13	09-feb-1993	LT	0.024	UGL			GO
		RBLK-1	ENDRNA	R	0	UH13	09-feb-1993	LT	0.029	UGL			GO
		RBLK-1	ENDRNK	R	0	UH13	09-feb-1993	ND	0.029	UGL	R		GO
		RBLK-1	ESFSO4	R	0	UH13	09-feb-1993	LT	0.079	UGL			GO
		RBLK-1	GCLDAN	R	0	UH13	09-feb-1993	ND	0.075	UGL	R		GO
		RBLK-1	HPCL	R	0	UH13	09-feb-1993	LT	0.042	UGL			GO
		RBLK-1	HPCLE	R	0	UH13	09-feb-1993	LT	0.025	UGL			GO
		RBLK-1	ISODR	R	0	UH13	09-feb-1993	LT	0.056	UGL			GO
		RBLK-1	LIN	R	0	UH13	09-feb-1993	LT	0.051	UGL			GO
		RBLK-1	MEXCLR	R	0	UH13	09-feb-1993	LT	0.057	UGL			GO
		RBLK-1	PPDDD	R	0	UH13	09-feb-1993	LT	0.023	UGL			GO
		RBLK-1	PPDDE	R	0	UH13	09-feb-1993	LT	0.027	UGL			GO
		RBLK-1	PPDDT	R	0	UH13	09-feb-1993	LT	0.034	UGL			GO
		RBLK-1	TXPHEN	R	0	UH13	09-feb-1993	LT	1.35	UGL			GO
ES	DBG		AG	M	0	SS10	17-feb-1993	LT	4.6	UGL			
			AL	M	0	SS10	17-feb-1993	LT	141	UGL			
			BA	M	0	SS10	17-feb-1993	LT	5	UGL			
			BA	S	10	SS10	17-feb-1993		11	UGL			
			BA	S	3750	SS10	17-feb-1993		3720	UGL			
			BA	S	7500	SS10	17-feb-1993		7390	UGL			
			BA	S	7500	SS10	17-feb-1993		7440	UGL			
			BE	M	0	SS10	17-feb-1993	LT	5	UGL			
			CA	M	0	SS10	17-feb-1993	LT	500	UGL			
			CA	S	1000	SS10	17-feb-1993		1120	UGL			
			CA	S	7500	SS10	17-feb-1993		7870	UGL			
			CA	S	15000	SS10	17-feb-1993		15700	UGL			
			CA	S	15000	SS10	17-feb-1993		15800	UGL			
			CD	M	0	SS10	17-feb-1993	LT	4.01	UGL			

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			CD	S	15	SS10	17-feb-1993		16.2	UGL			
			CD	S	2000	SS10	17-feb-1993		1970	UGL			
			CD	S	4000	SS10	17-feb-1993		3910	UGL			
			CD	S	4000	SS10	17-feb-1993		3930	UGL			
			CO	M	0	SS10	17-feb-1993	LT	25	UGL			
			CO	S	50	SS10	17-feb-1993		50.5	UGL			
			CO	S	20000	SS10	17-feb-1993		19400	UGL			
			CO	S	40000	SS10	17-feb-1993		38600	UGL			
			CO	S	40000	SS10	17-feb-1993		38600	UGL			
			CR	M	0	SS10	17-feb-1993	LT	6.02	UGL			
			CR	S	10	SS10	17-feb-1993		9.67	UGL			
			CR	S	2000	SS10	17-feb-1993		1950	UGL			
			CR	S	4000	SS10	17-feb-1993		3870	UGL			
			CR	S	4000	SS10	17-feb-1993		3890	UGL			
			CU	M	0	SS10	17-feb-1993	LT	8.09	UGL			
			CU	S	20	SS10	17-feb-1993		22.6	UGL			
			CU	S	4000	SS10	17-feb-1993		3900	UGL			
			CU	S	8000	SS10	17-feb-1993		7770	UGL			
			CU	S	8000	SS10	17-feb-1993		7820	UGL			
			FE	M	0	SS10	17-feb-1993		67.3	UGL			
ES	DBG		K	M	0	SS10	17-feb-1993	LT	375	UGL			
			MG	M	0	SS10	17-feb-1993	LT	500	UGL			
			MG	S	1000	SS10	17-feb-1993		966	UGL			
			MG	S	7500	SS10	17-feb-1993		7570	UGL			
			MG	S	15000	SS10	17-feb-1993		15100	UGL			
			MG	S	15000	SS10	17-feb-1993		15100	UGL			
			MN	M	0	SS10	17-feb-1993	LT	2.75	UGL			
			MN	S	10	SS10	17-feb-1993		11.3	UGL			
			MN	S	750	SS10	17-feb-1993		737	UGL			
			MN	S	1500	SS10	17-feb-1993		1470	UGL			
			MN	S	1500	SS10	17-feb-1993		1470	UGL			
			NA	M	0	SS10	17-feb-1993	LT	500	UGL			
			NA	S	1000	SS10	17-feb-1993		1070	UGL			
			NA	S	20000	SS10	17-feb-1993		20000	UGL			
			NA	S	40000	SS10	17-feb-1993		39700	UGL			
			NA	S	40000	SS10	17-feb-1993		39800	UGL			
			NI	M	0	SS10	17-feb-1993	LT	34.3	UGL			
			NI	S	50	SS10	17-feb-1993		50.3	UGL			
			NI	S	6000	SS10	17-feb-1993		5850	UGL			
			NI	S	12000	SS10	17-feb-1993		11600	UGL			
			NI	S	12000	SS10	17-feb-1993		11600	UGL			
			PB	M	0	SS10	17-feb-1993	LT	18.6	UGL	W		
			SB	M	0	SS10	17-feb-1993	LT	38	UGL			
			SE	M	0	SS10	17-feb-1993	LT	71.1	UGL	W		
			V	M	0	SS10	17-feb-1993	LT	11	UGL			
			ZN	M	0	SS10	17-feb-1993	LT	21.1	UGL			
			ZN	S	40	SS10	17-feb-1993		41.2	UGL			
			ZN	S	7500	SS10	17-feb-1993		7220	UGL			
			ZN	S	15000	SS10	17-feb-1993		14300	UGL			
			ZN	S	15000	SS10	17-feb-1993		14400	UGL			
		RBLK-1	AG	R	0	SS10	17-feb-1993	LT	4.6	UGL			GO
		RBLK-1	AL	R	0	SS10	17-feb-1993	LT	141	UGL			GO
		RBLK-1	BA	R	0	SS10	17-feb-1993	LT	5	UGL			GO
		RBLK-1	BE	R	0	SS10	17-feb-1993	LT	5	UGL			GO
		RBLK-1	CA	R	0	SS10	17-feb-1993	LT	500	UGL			GO
		RBLK-1	CD	R	0	SS10	17-feb-1993	LT	4.01	UGL			GO
		RBLK-1	CO	R	0	SS10	17-feb-1993	LT	25	UGL			GO
		RBLK-1	CR	R	0	SS10	17-feb-1993	LT	6.02	UGL			GO
		RBLK-1	CU	R	0	SS10	17-feb-1993	LT	8.09	UGL			GO
		RBLK-1	FE	R	0	SS10	17-feb-1993	LT	38.8	UGL			GO
		RBLK-1	K	R	0	SS10	17-feb-1993	LT	375	UGL			GO
		RBLK-1	MG	R	0	SS10	17-feb-1993	LT	500	UGL			GO
		RBLK-1	MN	R	0	SS10	17-feb-1993	LT	2.75	UGL			GO
		RBLK-1	NA	R	0	SS10	17-feb-1993		7570	UGL			GO
		RBLK-1	NI	R	0	SS10	17-feb-1993	LT	34.3	UGL			GO
		RBLK-1	SB	R	0	SS10	17-feb-1993	LT	38	UGL			GO
		RBLK-1	V	R	0	SS10	17-feb-1993	LT	11	UGL			GO
		RBLK-1	ZN	R	0	SS10	17-feb-1993	LT	21.1	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- QC --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
ES	DBUA		AG	M	0	SS10	13-may-1993	LT	4.6	UGL			
			AL	M	0	SS10	13-may-1993	LT	141	UGL			
ES	DBUA		BA	M	0	SS10	13-may-1993	LT	5	UGL			
			BA	S	10	SS10	13-may-1993		9.48	UGL			
			BA	S	3750	SS10	13-may-1993		3600	UGL			
			BA	S	7500	SS10	13-may-1993		7310	UGL			
			BA	S	7500	SS10	13-may-1993		7310	UGL			
			BE	M	0	SS10	13-may-1993	LT	5	UGL			
			CA	M	0	SS10	13-may-1993	LT	500	UGL			
			CA	S	1000	SS10	13-may-1993		999	UGL			
			CA	S	7500	SS10	13-may-1993		7350	UGL			
			CA	S	15000	SS10	13-may-1993		14700	UGL			
			CA	S	15000	SS10	13-may-1993		14800	UGL			
			CD	M	0	SS10	13-may-1993	LT	4.01	UGL			
			CD	S	15	SS10	13-may-1993		15.1	UGL			
			CD	S	2000	SS10	13-may-1993		2010	UGL			
			CD	S	4000	SS10	13-may-1993		3980	UGL			
			CD	S	4000	SS10	13-may-1993		4010	UGL			
			CO	M	0	SS10	13-may-1993	LT	25	UGL			
			CO	S	50	SS10	13-may-1993		48.2	UGL			
			CO	S	20000	SS10	13-may-1993		19300	UGL			
			CO	S	40000	SS10	13-may-1993		38500	UGL			
			CO	S	40000	SS10	13-may-1993		38700	UGL			
			CR	M	0	SS10	13-may-1993	LT	6.02	UGL			
			CR	S	10	SS10	13-may-1993		9.47	UGL			
			CR	S	2000	SS10	13-may-1993		1940	UGL			
			CR	S	4000	SS10	13-may-1993		3890	UGL			
			CR	S	4000	SS10	13-may-1993		3890	UGL			
			CU	M	0	SS10	13-may-1993	LT	8.09	UGL			
			CU	S	20	SS10	13-may-1993		20	UGL			
			CU	S	4000	SS10	13-may-1993		3890	UGL			
			CU	S	8000	SS10	13-may-1993		7850	UGL			
			CU	S	8000	SS10	13-may-1993		7860	UGL			
			FE	M	0	SS10	13-may-1993	LT	38.8	UGL			
			K	M	0	SS10	13-may-1993	LT	375	UGL			
			MG	M	0	SS10	13-may-1993	LT	500	UGL			
			MG	S	1000	SS10	13-may-1993		964	UGL			
			MG	S	7500	SS10	13-may-1993		7330	UGL			
			MG	S	15000	SS10	13-may-1993		14700	UGL			
			MG	S	15000	SS10	13-may-1993		14700	UGL			
			MN	M	0	SS10	13-may-1993	LT	2.75	UGL			
			MN	S	10	SS10	13-may-1993		11	UGL			
			MN	S	750	SS10	13-may-1993		724	UGL			
			MN	S	1500	SS10	13-may-1993		1450	UGL			
			MN	S	1500	SS10	13-may-1993		1460	UGL			
			NA	M	0	SS10	13-may-1993	LT	500	UGL			
			NA	S	1000	SS10	13-may-1993		1110	UGL			
			NA	S	20000	SS10	13-may-1993		19700	UGL			
			NA	S	40000	SS10	13-may-1993		39700	UGL			
			NA	S	40000	SS10	13-may-1993		40000	UGL			
			NI	M	0	SS10	13-may-1993	LT	34.3	UGL			
			NI	S	50	SS10	13-may-1993		49.7	UGL			
			NI	S	6000	SS10	13-may-1993		5770	UGL			
ES	DBUA		NI	S	12000	SS10	13-may-1993		11600	UGL			
			NI	S	12000	SS10	13-may-1993		11600	UGL			
			SB	M	0	SS10	13-may-1993	LT	38	UGL			
			V	M	0	SS10	13-may-1993	LT	11	UGL			
			ZN	M	0	SS10	13-may-1993	LT	21.1	UGL			
			ZN	S	40	SS10	13-may-1993		37.7	UGL			
			ZN	S	7500	SS10	13-may-1993		7320	UGL			
			ZN	S	15000	SS10	13-may-1993		14500	UGL			
			ZN	S	15000	SS10	13-may-1993		14600	UGL			
		MW-018	AG	N	50	SS10	13-may-1993		46.5	UGL			GO
		MW-018	AG	N	50	SS10	13-may-1993		49.4	UGL			GO
		MW-018	AL	N	2000	SS10	13-may-1993		1890	UGL			GO
		MW-018	AL	N	2000	SS10	13-may-1993		1920	UGL			GO
		MW-018	BA	N	2000	SS10	13-may-1993		1670	UGL			GO
		MW-018	BA	N	2000	SS10	13-may-1993		1690	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		MW-018	BE	N	50	SS10	13-may-1993		52.9	UGL			GO
		MW-018	BE	N	50	SS10	13-may-1993		52.9	UGL			GO
		MW-018	CA	N	10000	SS10	13-may-1993		4270	UGL			GO
		MW-018	CA	N	10000	SS10	13-may-1993		6690	UGL			GO
		MW-018	CD	N	50	SS10	13-may-1993		47	UGL			GO
		MW-018	CD	N	50	SS10	13-may-1993		50.7	UGL			GO
		MW-018	CO	N	500	SS10	13-may-1993		509	UGL			GO
		MW-018	CO	N	500	SS10	13-may-1993		510	UGL			GO
		MW-018	CR	N	200	SS10	13-may-1993		175	UGL			GO
		MW-018	CR	N	200	SS10	13-may-1993		177	UGL			GO
		MW-018	CU	N	250	SS10	13-may-1993		236	UGL			GO
		MW-018	CU	N	250	SS10	13-may-1993		236	UGL			GO
		MW-018	FE	N	1000	SS10	13-may-1993		963	UGL			GO
		MW-018	FE	N	1000	SS10	13-may-1993		980	UGL			GO
		MW-018	K	N	10000	SS10	13-may-1993		10600	UGL			GO
		MW-018	K	N	10000	SS10	13-may-1993		11000	UGL			GO
		MW-018	MG	N	10000	SS10	13-may-1993		8250	UGL			GO
		MW-018	MG	N	10000	SS10	13-may-1993		9550	UGL			GO
		MW-018	MN	N	500	SS10	13-may-1993		461	UGL			GO
		MW-018	MN	N	500	SS10	13-may-1993		462	UGL			GO
		MW-018	NA	N	10000	SS10	13-may-1993		7430	UGL			GO
		MW-018	NA	N	10000	SS10	13-may-1993		9190	UGL			GO
		MW-018	NI	N	500	SS10	13-may-1993		508	UGL			GO
		MW-018	NI	N	500	SS10	13-may-1993		516	UGL			GO
		MW-018	SB	N	500	SS10	13-may-1993		509	UGL			GO
		MW-018	SB	N	500	SS10	13-may-1993		528	UGL			GO
		MW-018	V	N	500	SS10	13-may-1993		471	UGL			GO
		MW-018	V	N	500	SS10	13-may-1993		472	UGL			GO
		MW-018	ZN	N	500	SS10	13-may-1993		477	UGL			GO
		MW-018	ZN	N	500	SS10	13-may-1993		479	UGL			GO
		RBLK-1	AG	R	0	SS10	13-may-1993	LT	4.6	UGL			GO
		RBLK-1	AL	R	0	SS10	13-may-1993	LT	141	UGL			GO
		RBLK-1	BA	R	0	SS10	13-may-1993	LT	5	UGL			GO
		RBLK-1	BE	R	0	SS10	13-may-1993	LT	5	UGL			GO
		RBLK-1	CA	R	0	SS10	13-may-1993	LT	500	UGL			GO
		RBLK-1	CD	R	0	SS10	13-may-1993	LT	4.01	UGL			GO
ES	DBUA	RBLK-1	CO	R	0	SS10	13-may-1993	LT	25	UGL			GO
		RBLK-1	CR	R	0	SS10	13-may-1993	LT	6.02	UGL			GO
		RBLK-1	CU	R	0	SS10	13-may-1993	LT	8.09	UGL			GO
		RBLK-1	FE	R	0	SS10	13-may-1993	LT	38.8	UGL			GO
		RBLK-1	K	R	0	SS10	13-may-1993		773	UGL			GO
		RBLK-1	MG	R	0	SS10	13-may-1993	LT	500	UGL			GO
		RBLK-1	MN	R	0	SS10	13-may-1993	LT	2.75	UGL			GO
		RBLK-1	NA	R	0	SS10	13-may-1993		560	UGL			GO
		RBLK-1	NI	R	0	SS10	13-may-1993	LT	34.3	UGL			GO
		RBLK-1	SB	R	0	SS10	13-may-1993	LT	38	UGL			GO
		RBLK-1	V	R	0	SS10	13-may-1993	LT	11	UGL			GO
		RBLK-1	ZN	R	0	SS10	13-may-1993	LT	21.1	UGL			GO
ES	DCG		PB	M	0	SD20	25-feb-1993	LT	1.26	UGL			
			PB	S	10	SD20	25-feb-1993		10	UGL			
			PB	S	80	SD20	25-feb-1993		81.4	UGL			
			PB	S	80	SD20	25-feb-1993		83.6	UGL			
		RBLK-1	PB	R	0	SD20	25-feb-1993	LT	1.26	UGL			GO
ES	DCUA		PB	M	0	SD20	07-may-1993	LT	1.26	UGL			
			PB	S	10	SD20	07-may-1993		9.2	UGL			
			PB	S	80	SD20	07-may-1993		81.2	UGL			
			PB	S	80	SD20	07-may-1993		84	UGL			
		MW-018	PB	N	40	SD20	07-may-1993		37.9	UGL			GO
		MW-018	PB	N	40	SD20	07-may-1993		38.7	UGL			GO
		RBLK-1	PB	R	0	SD20	07-may-1993	LT	1.26	UGL			GO
ES	DDC		111TCE	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			112TCE	M	0	UM20	01-feb-1993	LT	1.2	UGL			
			11DCE	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			11DCLE	M	0	UM20	01-feb-1993	LT	0.68	UGL			
			12DCD4	S	50	UM20	01-feb-1993		47	UGL			
			12DCE	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			12DCLE	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			12DCLP	M	0	UM20	01-feb-1993	LT	0.5	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			2CLEVE	M	0	UM20	01-feb-1993	LT	0.71	UGL			
			4BFB	S	50	UM20	01-feb-1993		50	UGL			
			ACET	M	0	UM20	01-feb-1993	LT	13	UGL			
			ACROLN	M	0	UM20	01-feb-1993	ND	100	UGL	R		
			ACRYLO	M	0	UM20	01-feb-1993	ND	100	UGL	R		
			BRDCLM	M	0	UM20	01-feb-1993	LT	0.59	UGL			
			C13DCP	M	0	UM20	01-feb-1993	LT	0.58	UGL			
			C2AVE	M	0	UM20	01-feb-1993	LT	8.3	UGL			
			C2H3CL	M	0	UM20	01-feb-1993	LT	2.6	UGL			
			C2H5CL	M	0	UM20	01-feb-1993	LT	1.9	UGL			
			C6H6	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			CCL3F	M	0	UM20	01-feb-1993	LT	1.4	UGL			
			CCL4	M	0	UM20	01-feb-1993	LT	0.58	UGL			
			CH2CL2	M	0	UM20	01-feb-1993	LT	2.3	UGL			
			CH3BR	M	0	UM20	01-feb-1993	LT	5.8	UGL			
			CH3CL	M	0	UM20	01-feb-1993	LT	3.2	UGL			
ES	DDC		CHBR3	M	0	UM20	01-feb-1993	LT	2.6	UGL			
			CHCL3	M	0	UM20	01-feb-1993		0.78	UGL			
			CL2BZ	M	0	UM20	01-feb-1993	ND	10	UGL	R		
			CLC6H5	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			CS2	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			DBRCLM	M	0	UM20	01-feb-1993	LT	0.67	UGL			
			ETC6H5	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			MEC6D8	S	50	UM20	01-feb-1993		49	UGL			
			MEC6H5	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			MEK	M	0	UM20	01-feb-1993	LT	6.4	UGL			
			MIBK	M	0	UM20	01-feb-1993	LT	3	UGL			
			MNBK	M	0	UM20	01-feb-1993	LT	3.6	UGL			
			STYR	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			T13DCP	M	0	UM20	01-feb-1993	LT	0.7	UGL			
			TCLEA	M	0	UM20	01-feb-1993	LT	0.51	UGL			
			TCLEE	M	0	UM20	01-feb-1993	LT	1.6	UGL			
			TRCLE	M	0	UM20	01-feb-1993	LT	0.5	UGL			
			XYLEN	M	0	UM20	01-feb-1993	LT	0.84	UGL			
		MW002	12DCD4	N	50	UM20	01-feb-1993		54	UGL			GO
		MW002	4BFB	N	50	UM20	01-feb-1993		44	UGL			GO
		MW002	MEC6D8	N	50	UM20	01-feb-1993		45	UGL			GO
		MW004	12DCD4	N	50	UM20	01-feb-1993		56	UGL			GO
		MW004	4BFB	N	50	UM20	01-feb-1993		43	UGL			GO
		MW004	MEC6D8	N	50	UM20	01-feb-1993		43	UGL			GO
		MW010	12DCD4	N	50	UM20	01-feb-1993		57	UGL			GO
		MW010	4BFB	N	50	UM20	01-feb-1993		45	UGL			GO
		MW010	MEC6D8	N	50	UM20	01-feb-1993		46	UGL			GO
		MW014	12DCD4	N	50	UM20	01-feb-1993		56	UGL			GO
		MW014	4BFB	N	50	UM20	01-feb-1993		45	UGL			GO
		MW014	MEC6D8	N	50	UM20	01-feb-1993		44	UGL			GO
		MW016	12DCD4	N	50	UM20	01-feb-1993		56	UGL			GO
		MW016	4BFB	N	50	UM20	01-feb-1993		44	UGL			GO
		MW016	MEC6D8	N	50	UM20	01-feb-1993		45	UGL			GO
		MW018	12DCD4	N	50	UM20	01-feb-1993		57	UGL			GO
		MW018	4BFB	N	50	UM20	01-feb-1993		44	UGL			GO
		MW018	MEC6D8	N	50	UM20	01-feb-1993		45	UGL			GO
ES	DDE		111TCE	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			112TCE	M	0	UM20	02-feb-1993	LT	1.2	UGL			
			11DCE	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			11DCLE	M	0	UM20	02-feb-1993	LT	0.68	UGL			
			12DCD4	S	50	UM20	02-feb-1993		47	UGL			
			12DCE	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			12DCLE	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			12DCLP	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			2CLEVE	M	0	UM20	02-feb-1993	LT	0.71	UGL			
			4BFB	S	50	UM20	02-feb-1993		50	UGL			
			ACET	M	0	UM20	02-feb-1993	LT	13	UGL			
			ACROLN	M	0	UM20	02-feb-1993	ND	100	UGL	R		
			ACRYLO	M	0	UM20	02-feb-1993	ND	100	UGL	R		
			BRDCLM	M	0	UM20	02-feb-1993	LT	0.59	UGL			
ES	DDE		C13DCP	M	0	UM20	02-feb-1993	LT	0.58	UGL			
			C2AVE	M	0	UM20	02-feb-1993	LT	8.3	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			C2H3CL	M	0	UM20	02-feb-1993	LT	2.6	UGL			
			C2H5CL	M	0	UM20	02-feb-1993	LT	1.9	UGL			
			C6H6	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			CCL3F	M	0	UM20	02-feb-1993	LT	1.4	UGL			
			CCL4	M	0	UM20	02-feb-1993	LT	0.58	UGL			
			CH2CL2	M	0	UM20	02-feb-1993	LT	2.3	UGL			
			CH3BR	M	0	UM20	02-feb-1993	LT	5.8	UGL			
			CH3CL	M	0	UM20	02-feb-1993	LT	3.2	UGL			
			CHBR3	M	0	UM20	02-feb-1993	LT	2.6	UGL			
			CHCL3	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			CL2BZ	M	0	UM20	02-feb-1993	ND	10	UGL	R		
			CLC6H5	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			CS2	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			DBRCLM	M	0	UM20	02-feb-1993	LT	0.67	UGL			
			ETC6H5	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			MEC6D8	S	50	UM20	02-feb-1993		49	UGL			
			MEC6H5	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			MEK	M	0	UM20	02-feb-1993	LT	6.4	UGL			
			MIBK	M	0	UM20	02-feb-1993	LT	3	UGL			
			MNBK	M	0	UM20	02-feb-1993	LT	3.6	UGL			
			STYR	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			T13DCP	M	0	UM20	02-feb-1993	LT	0.7	UGL			
			TCLEA	M	0	UM20	02-feb-1993	LT	0.51	UGL			
			TCLEE	M	0	UM20	02-feb-1993	LT	1.6	UGL			
			TRCLE	M	0	UM20	02-feb-1993	LT	0.5	UGL			
			XYLEN	M	0	UM20	02-feb-1993	LT	0.84	UGL			
		MW001	12DCD4	N	50	UM20	02-feb-1993		54	UGL			GO
		MW001	4BFB	N	50	UM20	02-feb-1993		46	UGL			GO
		MW001	MEC6D8	N	50	UM20	02-feb-1993		47	UGL			GO
		RBLK-1	111TCE	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	112TCE	R	0	UM20	02-feb-1993	LT	1.2	UGL			GO
		RBLK-1	11DCE	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	11DCLE	R	0	UM20	02-feb-1993	LT	0.68	UGL			GO
		RBLK-1	12DCD4	N	50	UM20	02-feb-1993		53	UGL			GO
		RBLK-1	12DCE	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	12DCLE	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	12DCLP	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	2CLEVE	R	0	UM20	02-feb-1993	LT	0.71	UGL			GO
		RBLK-1	4BFB	N	50	UM20	02-feb-1993		46	UGL			GO
		RBLK-1	ACET	R	0	UM20	02-feb-1993	LT	13	UGL			GO
		RBLK-1	ACROLN	R	0	UM20	02-feb-1993	ND	100	UGL	R		GO
		RBLK-1	ACRYLO	R	0	UM20	02-feb-1993	ND	100	UGL	R		GO
		RBLK-1	BRDCLM	R	0	UM20	02-feb-1993	LT	0.59	UGL			GO
		RBLK-1	C13DCP	R	0	UM20	02-feb-1993	LT	0.58	UGL			GO
		RBLK-1	C2AVE	R	0	UM20	02-feb-1993	LT	8.3	UGL			GO
		RBLK-1	C2H3CL	R	0	UM20	02-feb-1993	LT	2.6	UGL			GO
		RBLK-1	C2H5CL	R	0	UM20	02-feb-1993	LT	1.9	UGL			GO
		RBLK-1	C6H6	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	CCL3F	R	0	UM20	02-feb-1993	LT	1.4	UGL			GO
ES	DDE	RBLK-1	CCL4	R	0	UM20	02-feb-1993	LT	0.58	UGL			GO
		RBLK-1	CH2CL2	R	0	UM20	02-feb-1993		6.1	UGL			GO
		RBLK-1	CH3BR	R	0	UM20	02-feb-1993	LT	5.8	UGL			GO
		RBLK-1	CH3CL	R	0	UM20	02-feb-1993	LT	3.2	UGL			GO
		RBLK-1	CHBR3	R	0	UM20	02-feb-1993	LT	2.6	UGL			GO
		RBLK-1	CHCL3	R	0	UM20	02-feb-1993		5.6	UGL			GO
		RBLK-1	CL2BZ	R	0	UM20	02-feb-1993	ND	10	UGL	R		GO
		RBLK-1	CLC6H5	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	CS2	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	DBRCLM	R	0	UM20	02-feb-1993	LT	0.67	UGL			GO
		RBLK-1	ETC6H5	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	MEC6D8	N	50	UM20	02-feb-1993		46	UGL			GO
		RBLK-1	MEC6H5	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	MEK	R	0	UM20	02-feb-1993	LT	6.4	UGL			GO
		RBLK-1	MIBK	R	0	UM20	02-feb-1993	LT	3	UGL			GO
		RBLK-1	MNBK	R	0	UM20	02-feb-1993	LT	3.6	UGL			GO
		RBLK-1	STYR	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	T13DCP	R	0	UM20	02-feb-1993	LT	0.7	UGL			GO
		RBLK-1	TCLEA	R	0	UM20	02-feb-1993	LT	0.51	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		RBLK-1	TCLEE	R	0	UM20	02-feb-1993	LT	1.6	UGL			GO
		RBLK-1	TRCLE	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	XYLEN	R	0	UM20	02-feb-1993	LT	0.84	UGL			GO
		TBLK-1	111TCE	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	112TCE	T	0	UM20	02-feb-1993	LT	1.2	UGL			GO
		TBLK-1	11DCE	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	11DCLE	T	0	UM20	02-feb-1993	LT	0.68	UGL			GO
		TBLK-1	12DCD4	N	50	UM20	02-feb-1993		54				
		RBLK-1	TCLEE	R	0	UM20	02-feb-1993	LT	1.6	UGL			GO
		RBLK-1	TRCLE	R	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		RBLK-1	XYLEN	R	0	UM20	02-feb-1993	LT	0.84	UGL			GO
		TBLK-1	111TCE	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	112TCE	T	0	UM20	02-feb-1993	LT	1.2	UGL			GO
		TBLK-1	11DCE	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	11DCLE	T	0	UM20	02-feb-1993	LT	0.68	UGL			GO
		TBLK-1	12DCD4	N	50	UM20	02-feb-1993		54	UGL			GO
		TBLK-1	12DCE	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	12DCLE	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	12DCLP	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	2CLEVE	T	0	UM20	02-feb-1993	LT	0.71	UGL			GO
		TBLK-1	4BFB	N	50	UM20	02-feb-1993		45	UGL			GO
		TBLK-1	ACET	T	0	UM20	02-feb-1993	LT	13	UGL			GO
		TBLK-1	ACROLN	T	0	UM20	02-feb-1993	ND	100	UGL	R		GO
		TBLK-1	ACRYLO	T	0	UM20	02-feb-1993	ND	100	UGL	R		GO
		TBLK-1	BRDCLM	T	0	UM20	02-feb-1993		0.68	UGL			GO
		TBLK-1	C13DCP	T	0	UM20	02-feb-1993	LT	0.58	UGL			GO
		TBLK-1	C2AVE	T	0	UM20	02-feb-1993	LT	8.3	UGL			GO
		TBLK-1	C2H3CL	T	0	UM20	02-feb-1993	LT	2.6	UGL			GO
		TBLK-1	C2H5CL	T	0	UM20	02-feb-1993	LT	1.9	UGL			GO
		TBLK-1	C6H6	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	CCL3F	T	0	UM20	02-feb-1993	LT	1.4	UGL			GO
		TBLK-1	CCL4	T	0	UM20	02-feb-1993	LT	0.58	UGL			GO
		TBLK-1	CH2CL2	T	0	UM20	02-feb-1993		2.6	UGL			GO
		TBLK-1	CH3BR	T	0	UM20	02-feb-1993	LT	5.8	UGL			GO
		TBLK-1	CH3CL	T	0	UM20	02-feb-1993	LT	3.2	UGL			GO
		TBLK-1	CHBR3	T	0	UM20	02-feb-1993	LT	2.6	UGL			GO
		TBLK-1	CHCL3	T	0	UM20	02-feb-1993		6.5	UGL			GO
		TBLK-1	CL2BZ	T	0	UM20	02-feb-1993	ND	10	UGL	R		GO
		TBLK-1	CLC6H5	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	CS2	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
ES	DDE	TBLK-1	DBRCLM	T	0	UM20	02-feb-1993	LT	0.67	UGL			GO
		TBLK-1	ETC6H5	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	MEC6D8	N	50	UM20	02-feb-1993		46	UGL			GO
		TBLK-1	MEC6H5	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	MEK	T	0	UM20	02-feb-1993	LT	6.4	UGL			GO
		TBLK-1	MIBK	T	0	UM20	02-feb-1993	LT	3	UGL			GO
		TBLK-1	MNBK	T	0	UM20	02-feb-1993	LT	3.6	UGL			GO
		TBLK-1	STYR	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	T13DCP	T	0	UM20	02-feb-1993	LT	0.7	UGL			GO
		TBLK-1	TCLEA	T	0	UM20	02-feb-1993	LT	0.51	UGL			GO
		TBLK-1	TCLEE	T	0	UM20	02-feb-1993	LT	1.6	UGL			GO
		TBLK-1	TRCLE	T	0	UM20	02-feb-1993	LT	0.5	UGL			GO
		TBLK-1	XYLEN	T	0	UM20	02-feb-1993	LT	0.84	UGL			GO
ES	DEE		CL	M	0	TT10	12-feb-1993	LT	2120	UGL			
			CL	S	4000	TT10	12-feb-1993		3660	UGL			
			CL	S	25000	TT10	12-feb-1993		24900	UGL			
			CL	S	25000	TT10	12-feb-1993		25000	UGL			
			SO4	M	0	TT10	12-feb-1993	LT	10000	UGL			
			SO4	S	20000	TT10	12-feb-1993		17500	UGL			
			SO4	S	250000	TT10	12-feb-1993		249000	UGL			
			SO4	S	250000	TT10	12-feb-1993		249000	UGL			
		RBLK-1	CL	N	25000	TT10	12-feb-1993		29000	UGL			GO
		RBLK-1	CL	N	25000	TT10	12-feb-1993		29000	UGL			GO
		RBLK-1	CL	R	0	TT10	12-feb-1993	LT	2120	UGL			GO
		RBLK-1	SO4	N	250000	TT10	12-feb-1993		260000	UGL			GO
		RBLK-1	SO4	N	250000	TT10	12-feb-1993		260000	UGL			GO
		RBLK-1	SO4	R	0	TT10	12-feb-1993	LT	10000	UGL			GO
ES	DEKA		CL	M	0	TT10	12-may-1993	LT	2120	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			CL	S	4000	TT10	12-may-1993		3640	UGL			
			CL	S	25000	TT10	12-may-1993		24700	UGL			
			CL	S	25000	TT10	12-may-1993		24800	UGL			
			SO4	M	0	TT10	12-may-1993	LT	10000	UGL			
			SO4	S	20000	TT10	12-may-1993		17400	UGL			
			SO4	S	250000	TT10	12-may-1993		250000	UGL			
			SO4	S	250000	TT10	12-may-1993		250000	UGL			
		RBLK-1	CL	N	25000	TT10	12-may-1993		26000	UGL			GO
		RBLK-1	CL	N	25000	TT10	12-may-1993		26000	UGL			GO
		RBLK-1	CL	R	0	TT10	12-may-1993	LT	2120	UGL			GO
		RBLK-1	SO4	N	250000	TT10	12-may-1993		240000	UGL			GO
		RBLK-1	SO4	N	250000	TT10	12-may-1993		240000	UGL			GO
		RBLK-1	SO4	R	0	TT10	12-may-1993	LT	10000	UGL			GO
ES	DFH		OILGR	M	0	00	10-feb-1993	LT	171	UGL			
			OILGR	S	4280	00	10-feb-1993		3650	UGL			
			OILGR	S	4280	00	10-feb-1993		3650	UGL			
			TPHC	M	0	00	10-feb-1993	LT	171	UGL			
			TPHC	S	4280	00	10-feb-1993		3650	UGL			
			TPHC	S	4280	00	10-feb-1993		3650	UGL			
		RBLK-1	OILGR	N	4280	00	10-feb-1993		3830	UGL			GO
ES	DFH	RBLK-1	OILGR	R	0	00	10-feb-1993	LT	181	UGL			GO
		RBLK-1	TPHC	N	4280	00	10-feb-1993		3650	UGL			GO
		RBLK-1	TPHC	R	0	00	10-feb-1993	LT	181	UGL			GO
ES	DGSA		AS	M	0	SD22	10-may-1993	LT	2.54	UGL		I	
			AS	S	5	SD22	10-may-1993		6.4	UGL		I	
			AS	S	75	SD22	10-may-1993		79.1	UGL		I	
			AS	S	75	SD22	10-may-1993		79.6	UGL		I	
		MW-018	AS	N	37.5	SD22	10-may-1993		42	UGL		I	GO
		MW-018	AS	N	37.5	SD22	10-may-1993		43.7	UGL		I	GO
		RBLK-1	AS	R	0	SD22	10-may-1993	LT	2.54	UGL		I	GO
ES	DKPA		124TCB	M	0	UM18	07-may-1993	LT	1.8	UGL			
			12DCLB	M	0	UM18	07-may-1993	LT	1.7	UGL			
			12DPH	M	0	UM18	07-may-1993	ND	2	UGL	R		
			13DCLB	M	0	UM18	07-may-1993	LT	1.7	UGL			
			14DCLB	M	0	UM18	07-may-1993	LT	1.7	UGL			
			245TCP	M	0	UM18	07-may-1993	LT	5.2	UGL			
			246TBP	S	100	UM18	07-may-1993		97	UGL			
			246TCP	M	0	UM18	07-may-1993	LT	4.2	UGL			
			24DCLP	M	0	UM18	07-may-1993	LT	2.9	UGL			
			24DMPN	M	0	UM18	07-may-1993	LT	5.8	UGL			
			24DNP	M	0	UM18	07-may-1993	LT	21	UGL			
			24DNT	M	0	UM18	07-may-1993	LT	4.5	UGL			
			26DNT	M	0	UM18	07-may-1993	LT	0.79	UGL			
			2CLP	M	0	UM18	07-may-1993	LT	0.99	UGL			
			2CNAP	M	0	UM18	07-may-1993	LT	0.5	UGL			
			2FBP	S	50	UM18	07-may-1993		37	UGL			
			2FP	S	100	UM18	07-may-1993		82	UGL			
			2MNAP	M	0	UM18	07-may-1993	LT	1.7	UGL			
			2MP	M	0	UM18	07-may-1993	LT	3.9	UGL			
			2NANIL	M	0	UM18	07-may-1993	LT	4.3	UGL			
			2NP	M	0	UM18	07-may-1993	LT	3.7	UGL			
			33DCBD	M	0	UM18	07-may-1993	LT	12	UGL			
			3NANIL	M	0	UM18	07-may-1993	LT	4.9	UGL			
			46DN2C	M	0	UM18	07-may-1993	LT	17	UGL			
			4BRPPE	M	0	UM18	07-may-1993	LT	4.2	UGL			
			4CANIL	M	0	UM18	07-may-1993	LT	7.3	UGL			
			4CL3C	M	0	UM18	07-may-1993	LT	4	UGL			
			4CLPPE	M	0	UM18	07-may-1993	LT	5.1	UGL			
			4MP	M	0	UM18	07-may-1993	LT	0.52	UGL			
			4NANIL	M	0	UM18	07-may-1993	LT	5.2	UGL			
			4NP	M	0	UM18	07-may-1993	LT	12	UGL			
			ABHC	M	0	UM18	07-may-1993	ND	4	UGL	R		
			ACLDAN	M	0	UM18	07-may-1993	ND	5.1	UGL	R		
			AENSLF	M	0	UM18	07-may-1993	ND	9.2	UGL	R		
			ALDRN	M	0	UM18	07-may-1993	ND	4.7	UGL	R		
			ANAPNE	M	0	UM18	07-may-1993	LT	1.7	UGL			
			ANAPYL	M	0	UM18	07-may-1993	LT	0.5	UGL			
			ANTRC	M	0	UM18	07-may-1993	LT	0.5	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			B2CEXM	M	0	UM18	07-may-1993	LT	1.5	UGL			
ES	DKPA		B2CIPE	M	0	UM18	07-may-1993	LT	5.3	UGL			
			B2CLEE	M	0	UM18	07-may-1993	LT	1.9	UGL			
			B2EHP	M	0	UM18	07-may-1993	LT	4.8	UGL			
			BAANTR	M	0	UM18	07-may-1993	LT	1.6	UGL			
			BAPYR	M	0	UM18	07-may-1993	LT	4.7	UGL			
			BBFANT	M	0	UM18	07-may-1993	LT	5.4	UGL			
			BBHC	M	0	UM18	07-may-1993	ND	4	UGL	R		
			BBZP	M	0	UM18	07-may-1993	LT	3.4	UGL			
			BENSLF	M	0	UM18	07-may-1993	ND	9.2	UGL	R		
			BENZID	M	0	UM18	07-may-1993	ND	10	UGL	R		
			BENZOA	M	0	UM18	07-may-1993	LT	13	UGL			
			BGHIPY	M	0	UM18	07-may-1993	LT	6.1	UGL			
			BKFANT	M	0	UM18	07-may-1993	LT	0.87	UGL			
			BZALC	M	0	UM18	07-may-1993	LT	0.72	UGL			
			CARBAZ	M	0	UM18	07-may-1993	ND	0.5	UGL	R		
			CHRY	M	0	UM18	07-may-1993	LT	2.4	UGL			
			CL6BZ	M	0	UM18	07-may-1993	LT	1.6	UGL			
			CL6CP	M	0	UM18	07-may-1993	LT	8.6	UGL			
			CL6ET	M	0	UM18	07-may-1993	LT	1.5	UGL			
			DBAHA	M	0	UM18	07-may-1993	LT	6.5	UGL			
			DBHC	M	0	UM18	07-may-1993	ND	4	UGL	R		
			DBZFUR	M	0	UM18	07-may-1993	LT	1.7	UGL			
			DEP	M	0	UM18	07-may-1993	LT	2	UGL			
			DLDRN	M	0	UM18	07-may-1993	ND	4.7	UGL	R		
			DMP	M	0	UM18	07-may-1993	LT	1.5	UGL			
			DNBP	M	0	UM18	07-may-1993	LT	3.7	UGL			
			DNOP	M	0	UM18	07-may-1993	LT	15	UGL			
			ENDRN	M	0	UM18	07-may-1993	ND	7.6	UGL	R		
			ENDRNA	M	0	UM18	07-may-1993	ND	8	UGL	R		
			ENDRNK	M	0	UM18	07-may-1993	ND	8	UGL	R		
			ESFSO4	M	0	UM18	07-may-1993	ND	9.2	UGL	R		
			FANT	M	0	UM18	07-may-1993	LT	3.3	UGL			
			FLRENE	M	0	UM18	07-may-1993	LT	3.7	UGL			
			GCLDAN	M	0	UM18	07-may-1993	ND	5.1	UGL	R		
			HCBD	M	0	UM18	07-may-1993	LT	3.4	UGL			
			HPCL	M	0	UM18	07-may-1993	ND	2	UGL	R		
			HPCLE	M	0	UM18	07-may-1993	ND	5	UGL	R		
			ICDPYR	M	0	UM18	07-may-1993	LT	8.6	UGL			
			ISOPHR	M	0	UM18	07-may-1993	LT	4.8	UGL			
			LIN	M	0	UM18	07-may-1993	ND	4	UGL	R		
			MEXCLR	M	0	UM18	07-may-1993	ND	5.1	UGL	R		
			NAP	M	0	UM18	07-may-1993	LT	0.5	UGL			
			NB	M	0	UM18	07-may-1993	LT	0.5	UGL			
			NBD5	S	50	UM18	07-may-1993		44	UGL			
			NNDMEA	M	0	UM18	07-may-1993	ND	2	UGL	R		
			NNDNPA	M	0	UM18	07-may-1993	LT	4.4	UGL			
			NNDPA	M	0	UM18	07-may-1993	LT	3	UGL			
			PCB016	M	0	UM18	07-may-1993	ND	21	UGL	R		
			PCB221	M	0	UM18	07-may-1993	ND	21	UGL	R		
			PCB232	M	0	UM18	07-may-1993	ND	21	UGL	R		
			PCB242	M	0	UM18	07-may-1993	ND	30	UGL	R		
ES	DKPA		PCB248	M	0	UM18	07-may-1993	ND	30	UGL	R		
			PCB254	M	0	UM18	07-may-1993	ND	36	UGL	R		
			PCB260	M	0	UM18	07-may-1993	ND	36	UGL	R		
			PCP	M	0	UM18	07-may-1993	LT	18	UGL			
			PHANTR	M	0	UM18	07-may-1993	LT	0.5	UGL			
			PHEND6	S	100	UM18	07-may-1993		60	UGL			
			PHENOL	M	0	UM18	07-may-1993	LT	9.2	UGL			
			PPDDD	M	0	UM18	07-may-1993	ND	4	UGL	R		
			PPDDE	M	0	UM18	07-may-1993	ND	4.7	UGL	R		
			PPDDT	M	0	UM18	07-may-1993	ND	9.2	UGL	R		
			PYR	M	0	UM18	07-may-1993	LT	2.8	UGL			
			TRPD14	S	50	UM18	07-may-1993		50	UGL			
			TXPHEN	M	0	UM18	07-may-1993	ND	36	UGL	R		
			UNK532	S	5	UM18	07-may-1993		2	UGL	S		
		MW-001	246TBP	N	100	UM18	07-may-1993		41	UGL			GO
		MW-001	2FBP	N	50	UM18	07-may-1993		37	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		MW-001	2FP	N	100	UM18	07-may-1993		64	UGL			GO
		MW-001	NBD5	N	50	UM18	07-may-1993		50	UGL			GO
		MW-001	PHEND6	N	100	UM18	07-may-1993	LT	36	UGL			GO
		MW-001	TRPD14	N	50	UM18	07-may-1993		44	UGL			GO
		MW-002	246TBP	N	100	UM18	07-may-1993		68	UGL			GO
		MW-002	2FBP	N	50	UM18	07-may-1993		37	UGL			GO
		MW-002	2FP	N	100	UM18	07-may-1993		110	UGL			GO
		MW-002	NBD5	N	50	UM18	07-may-1993		49	UGL			GO
		MW-002	PHEND6	N	100	UM18	07-may-1993		110	UGL			GO
		MW-002	TRPD14	N	50	UM18	07-may-1993		58	UGL			GO
		MW-004	246TBP	N	100	UM18	07-may-1993		78	UGL			GO
		MW-004	2FBP	N	50	UM18	07-may-1993		35	UGL			GO
		MW-004	2FP	N	100	UM18	07-may-1993		120	UGL			GO
		MW-004	NBD5	N	50	UM18	07-may-1993		45	UGL			GO
		MW-004	PHEND6	N	100	UM18	07-may-1993		120	UGL			GO
		MW-004	TRPD14	N	50	UM18	07-may-1993		47	UGL			GO
		MW-014	246TBP	N	100	UM18	07-may-1993		79	UGL			GO
		MW-014	2FBP	N	50	UM18	07-may-1993		40	UGL			GO
		MW-014	2FP	N	100	UM18	07-may-1993		120	UGL			GO
		MW-014	NBD5	N	50	UM18	07-may-1993		52	UGL			GO
		MW-014	PHEND6	N	100	UM18	07-may-1993		120	UGL			GO
		MW-014	TRPD14	N	50	UM18	07-may-1993		51	UGL			GO
		MW-016	246TBP	N	100	UM18	07-may-1993	LT	13	UGL			GO
		MW-016	2FBP	N	50	UM18	07-may-1993		36	UGL			GO
		MW-016	2FP	N	100	UM18	07-may-1993	LT	17	UGL			GO
		MW-016	NBD5	N	50	UM18	07-may-1993		45	UGL			GO
		MW-016	PHEND6	N	100	UM18	07-may-1993	LT	36	UGL			GO
		MW-016	TRPD14	N	50	UM18	07-may-1993		54	UGL			GO
		MW-018	246TBP	N	100	UM18	07-may-1993		75	UGL			GO
		MW-018	2FBP	N	50	UM18	07-may-1993		38	UGL			GO
		MW-018	2FP	N	100	UM18	07-may-1993		110	UGL			GO
		MW-018	NBD5	N	50	UM18	07-may-1993		52	UGL			GO
		MW-018	PHEND6	N	100	UM18	07-may-1993		110	UGL			GO
		MW-018	TRPD14	N	50	UM18	07-may-1993		48	UGL			GO
		MW-10	246TBP	N	100	UM18	07-may-1993		60	UGL			GO
ES	DKPA	MW-10	2FBP	N	50	UM18	07-may-1993		39	UGL			GO
		MW-10	2FP	N	100	UM18	07-may-1993		120	UGL			GO
		MW-10	NBD5	N	50	UM18	07-may-1993		49	UGL			GO
		MW-10	PHEND6	N	100	UM18	07-may-1993		120	UGL			GO
		MW-10	TRPD14	N	50	UM18	07-may-1993		56	UGL			GO
		RBLK-1	124TCB	R	0	UM18	07-may-1993	LT	1.8	UGL			GO
		RBLK-1	12DCLB	R	0	UM18	07-may-1993	LT	1.7	UGL			GO
		RBLK-1	12DPH	R	0	UM18	07-may-1993	ND	2	UGL	R		GO
		RBLK-1	13DCLB	R	0	UM18	07-may-1993	LT	1.7	UGL			GO
		RBLK-1	14DCLB	R	0	UM18	07-may-1993	LT	1.7	UGL			GO
		RBLK-1	245TCP	R	0	UM18	07-may-1993	LT	5.2	UGL			GO
		RBLK-1	246TBP	N	100	UM18	07-may-1993		72	UGL			GO
		RBLK-1	246TCP	R	0	UM18	07-may-1993	LT	4.2	UGL			GO
		RBLK-1	24DCLP	R	0	UM18	07-may-1993	LT	2.9	UGL			GO
		RBLK-1	24DMPN	R	0	UM18	07-may-1993	LT	5.8	UGL			GO
		RBLK-1	24DNP	R	0	UM18	07-may-1993	LT	21	UGL			GO
		RBLK-1	24DNT	R	0	UM18	07-may-1993	LT	4.5	UGL			GO
		RBLK-1	26DNT	R	0	UM18	07-may-1993	LT	0.79	UGL			GO
		RBLK-1	2CLP	R	0	UM18	07-may-1993	LT	0.99	UGL			GO
		RBLK-1	2CNAP	R	0	UM18	07-may-1993	LT	0.5	UGL			GO
		RBLK-1	2FBP	N	50	UM18	07-may-1993		36	UGL			GO
		RBLK-1	2FP	N	100	UM18	07-may-1993		110	UGL			GO
		RBLK-1	2MNAP	R	0	UM18	07-may-1993	LT	1.7	UGL			GO
		RBLK-1	2MP	R	0	UM18	07-may-1993	LT	3.9	UGL			GO
		RBLK-1	2NANIL	R	0	UM18	07-may-1993	LT	4.3	UGL			GO
		RBLK-1	2NP	R	0	UM18	07-may-1993	LT	3.7	UGL			GO
		RBLK-1	33DCBD	R	0	UM18	07-may-1993	LT	12	UGL			GO
		RBLK-1	3NANIL	R	0	UM18	07-may-1993	LT	4.9	UGL			GO
		RBLK-1	46DN2C	R	0	UM18	07-may-1993	LT	17	UGL			GO
		RBLK-1	4BRPPE	R	0	UM18	07-may-1993	LT	4.2	UGL			GO
		RBLK-1	4CANIL	R	0	UM18	07-may-1993	LT	7.3	UGL			GO
		RBLK-1	4CL3C	R	0	UM18	07-may-1993	LT	4	UGL			GO
		RBLK-1	4CLPPE	R	0	UM18	07-may-1993	LT	5.1	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		RBLK-1	4MP	R	0	UM18	07-may-1993	LT	0.52	UGL			GO
		RBLK-1	4NANIL	R	0	UM18	07-may-1993	LT	5.2	UGL			GO
		RBLK-1	4NP	R	0	UM18	07-may-1993	LT	12	UGL			GO
		RBLK-1	ABHC	R	0	UM18	07-may-1993	ND	4	UGL	R		GO
		RBLK-1	ACLDAN	R	0	UM18	07-may-1993	ND	5.1	UGL	R		GO
		RBLK-1	AENSLF	R	0	UM18	07-may-1993	ND	9.2	UGL	R		GO
		RBLK-1	ALDRN	R	0	UM18	07-may-1993	ND	4.7	UGL	R		GO
		RBLK-1	ANAPNE	R	0	UM18	07-may-1993	LT	1.7	UGL			GO
		RBLK-1	ANAPYL	R	0	UM18	07-may-1993	LT	0.5	UGL			GO
		RBLK-1	ANTRC	R	0	UM18	07-may-1993	LT	0.5	UGL			GO
		RBLK-1	B2CEXM	R	0	UM18	07-may-1993	LT	1.5	UGL			GO
		RBLK-1	B2CIPE	R	0	UM18	07-may-1993	LT	5.3	UGL			GO
		RBLK-1	B2CLEE	R	0	UM18	07-may-1993	LT	1.9	UGL			GO
		RBLK-1	B2EHP	R	0	UM18	07-may-1993	LT	4.8	UGL			GO
		RBLK-1	BAANTR	R	0	UM18	07-may-1993	LT	1.6	UGL			GO
		RBLK-1	BAPYR	R	0	UM18	07-may-1993	LT	4.7	UGL			GO
		RBLK-1	BBFANT	R	0	UM18	07-may-1993	LT	5.4	UGL			GO
		RBLK-1	BBHC	R	0	UM18	07-may-1993	ND	4	UGL	R		GO
ES	DKPA	RBLK-1	BBZP	R	0	UM18	07-may-1993	LT	3.4	UGL			GO
		RBLK-1	BENSLF	R	0	UM18	07-may-1993	ND	9.2	UGL	R		GO
		RBLK-1	BENZID	R	0	UM18	07-may-1993	ND	10	UGL	R		GO
		RBLK-1	BENZOA	R	0	UM18	07-may-1993	LT	13	UGL			GO
		RBLK-1	BGHIPY	R	0	UM18	07-may-1993	LT	6.1	UGL			GO
		RBLK-1	BKFANT	R	0	UM18	07-may-1993	LT	0.87	UGL			GO
		RBLK-1	BZALC	R	0	UM18	07-may-1993	LT	0.72	UGL			GO
		RBLK-1	CARBAZ	R	0	UM18	07-may-1993	ND	0.5	UGL	R		GO
		RBLK-1	CHRY	R	0	UM18	07-may-1993	LT	2.4	UGL			GO
		RBLK-1	CL6BZ	R	0	UM18	07-may-1993	LT	1.6	UGL			GO
		RBLK-1	CL6CP	R	0	UM18	07-may-1993	LT	8.6	UGL			GO
		RBLK-1	CL6ET	R	0	UM18	07-may-1993	LT	1.5	UGL			GO
		RBLK-1	DBAHA	R	0	UM18	07-may-1993	LT	6.5	UGL			GO
		RBLK-1	DBHC	R	0	UM18	07-may-1993	ND	4	UGL	R		GO
		RBLK-1	DBZFUR	R	0	UM18	07-may-1993	LT	1.7	UGL			GO
		RBLK-1	DEP	R	0	UM18	07-may-1993	LT	2	UGL			GO
		RBLK-1	DLDRN	R	0	UM18	07-may-1993	ND	4.7	UGL	R		GO
		RBLK-1	DMP	R	0	UM18	07-may-1993	LT	1.5	UGL			GO
		RBLK-1	DNBP	R	0	UM18	07-may-1993	LT	3.7	UGL			GO
		RBLK-1	DNOP	R	0	UM18	07-may-1993	LT	15	UGL			GO
		RBLK-1	ENDRN	R	0	UM18	07-may-1993	ND	7.6	UGL	R		GO
		RBLK-1	ENDRNA	R	0	UM18	07-may-1993	ND	8	UGL	R		GO
		RBLK-1	ENDRNK	R	0	UM18	07-may-1993	ND	8	UGL	R		GO
		RBLK-1	ESFSO4	R	0	UM18	07-may-1993	ND	9.2	UGL	R		GO
		RBLK-1	FANT	R	0	UM18	07-may-1993	LT	3.3	UGL			GO
		RBLK-1	FLRENE	R	0	UM18	07-may-1993	LT	3.7	UGL			GO
		RBLK-1	GCLDAN	R	0	UM18	07-may-1993	ND	5.1	UGL	R		GO
		RBLK-1	HCBD	R	0	UM18	07-may-1993	LT	3.4	UGL			GO
		RBLK-1	HPCL	R	0	UM18	07-may-1993	ND	2	UGL	R		GO
		RBLK-1	HPCLE	R	0	UM18	07-may-1993	ND	5	UGL	R		GO
		RBLK-1	ICDPYR	R	0	UM18	07-may-1993	LT	8.6	UGL			GO
		RBLK-1	ISOPHR	R	0	UM18	07-may-1993	LT	4.8	UGL			GO
		RBLK-1	LIN	R	0	UM18	07-may-1993	ND	4	UGL	R		GO
		RBLK-1	MEXCLR	R	0	UM18	07-may-1993	ND	5.1	UGL	R		GO
		RBLK-1	NAP	R	0	UM18	07-may-1993	LT	0.5	UGL			GO
		RBLK-1	NB	R	0	UM18	07-may-1993	LT	0.5	UGL			GO
		RBLK-1	NBD5	N	50	UM18	07-may-1993		49	UGL			GO
		RBLK-1	NNDMEA	R	0	UM18	07-may-1993	ND	2	UGL	R		GO
		RBLK-1	NNDNPA	R	0	UM18	07-may-1993	LT	4.4	UGL			GO
		RBLK-1	NNDPA	R	0	UM18	07-may-1993	LT	3	UGL			GO
		RBLK-1	PCB016	R	0	UM18	07-may-1993	ND	21	UGL	R		GO
		RBLK-1	PCB221	R	0	UM18	07-may-1993	ND	21	UGL	R		GO
		RBLK-1	PCB232	R	0	UM18	07-may-1993	ND	21	UGL	R		GO
		RBLK-1	PCB242	R	0	UM18	07-may-1993	ND	30	UGL	R		GO
		RBLK-1	PCB248	R	0	UM18	07-may-1993	ND	30	UGL	R		GO
		RBLK-1	PCB254	R	0	UM18	07-may-1993	ND	36	UGL	R		GO
		RBLK-1	PCB260	R	0	UM18	07-may-1993	ND	36	UGL	R		GO
		RBLK-1	PCP	R	0	UM18	07-may-1993	LT	18	UGL			GO
		RBLK-1	PHANTR	R	0	UM18	07-may-1993	LT	0.5	UGL			GO
		RBLK-1	PHEND6	N	100	UM18	07-may-1993		100	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		RBLK-1	PHENOL	R	0	UM18	07-may-1993	LT	9.2	UGL			GO
ES	DKPA	RBLK-1	PPDDD	R	0	UM18	07-may-1993	ND	4	UGL	R		GO
		RBLK-1	PPDDE	R	0	UM18	07-may-1993	ND	4.7	UGL	R		GO
		RBLK-1	PPDDT	R	0	UM18	07-may-1993	ND	9.2	UGL	R		GO
		RBLK-1	PYR	R	0	UM18	07-may-1993	LT	2.8	UGL			GO
		RBLK-1	TRPD14	N	50	UM18	07-may-1993		47	UGL			GO
		RBLK-1	TXPHEN	R	0	UM18	07-may-1993	ND	36	UGL	R		GO
ES	DNHA		TL	M	0	SD09	06-may-1993	LT	6.99	UGL			
			TL	S	10	SD09	06-may-1993		10.7	UGL			
			TL	S	20	SD09	06-may-1993		21.5	UGL			
			TL	S	20	SD09	06-may-1993		21.6	UGL			
		MW-018	TL	N	10	SD09	06-may-1993	LT	6.99	UGL			GO
		MW-018	TL	N	10	SD09	06-may-1993	LT	6.99	UGL			GO
		RBLK-1	TL	R	0	SD09	06-may-1993	LT	6.99	UGL			GO
ES	DOMA		HG	M	0	SB01	13-may-1993	LT	0.243	UGL			
			HG	S	0.5	SB01	13-may-1993		0.519	UGL			
			HG	S	2.5	SB01	13-may-1993		2.47	UGL			
			HG	S	2.5	SB01	13-may-1993		2.7	UGL			
		MW-002	HG	N	4	SB01	13-may-1993		3.36	UGL			GO
		MW-002	HG	N	4	SB01	13-may-1993		3.75	UGL			GO
		RBLK-1	HG	R	0	SB01	13-may-1993	LT	0.243	UGL			GO
ES	DPEA		CL10BP	S	1.25	UH02	03-may-1993		0.98	UGL	T		
			CL10BP	S	1.25	UH02	04-may-1993		1.1	UGL	T		
			PCB016	M	0	UH02	03-may-1993	LT	0.16	UGL			
			PCB016	S	3.75	UH02	04-may-1993		3.2	UGL			
			PCB221	M	0	UH02	03-may-1993	ND	0.16	UGL	R		
			PCB232	M	0	UH02	03-may-1993	ND	0.16	UGL	R		
			PCB242	M	0	UH02	03-may-1993	ND	0.19	UGL	R		
			PCB248	M	0	UH02	03-may-1993	ND	0.19	UGL	R		
			PCB254	M	0	UH02	03-may-1993	ND	0.19	UGL	R		
			PCB260	M	0	UH02	03-may-1993	LT	0.19	UGL			
			PCB260	S	3.75	UH02	04-may-1993		3.3	UGL			
		RBLK-1	CL10BP	N	1.25	UH02	04-may-1993		0.96	UGL	T		GO
		RBLK-1	PCB016	R	0	UH02	04-may-1993	LT	0.16	UGL			GO
		RBLK-1	PCB221	R	0	UH02	04-may-1993	ND	0.16	UGL	R		GO
		RBLK-1	PCB232	R	0	UH02	04-may-1993	ND	0.16	UGL	R		GO
		RBLK-1	PCB242	R	0	UH02	04-may-1993	ND	0.19	UGL	R		GO
		RBLK-1	PCB248	R	0	UH02	04-may-1993	ND	0.19	UGL	R		GO
		RBLK-1	PCB254	R	0	UH02	04-may-1993	ND	0.19	UGL	R		GO
		RBLK-1	PCB260	R	0	UH02	04-may-1993	LT	0.19	UGL			GO
ES	DPFA		CL10BP	S	1.25	UH02	06-may-1993		1.1	UGL	T		
			CL10BP	S	1.25	UH02	06-may-1993		1.2	UGL	T		
			PCB016	M	0	UH02	06-may-1993	LT	0.16	UGL			
			PCB016	S	3.75	UH02	06-may-1993		3.3	UGL			
			PCB221	M	0	UH02	06-may-1993	ND	0.16	UGL	R		
			PCB232	M	0	UH02	06-may-1993	ND	0.16	UGL	R		
			PCB242	M	0	UH02	06-may-1993	ND	0.19	UGL	R		
			PCB248	M	0	UH02	06-may-1993	ND	0.19	UGL	R		
ES	DPFA		PCB254	M	0	UH02	06-may-1993	ND	0.19	UGL	R		
			PCB260	M	0	UH02	06-may-1993	LT	0.19	UGL			
			PCB260	S	3.75	UH02	06-may-1993		3.4	UGL			
		MW-001	CL10BP	N	1.25	UH02	06-may-1993		1.2	UGL	T		GO
		MW-002	CL10BP	N	1.25	UH02	06-may-1993		1.1	UGL	T		GO
		MW-004	CL10BP	N	1.25	UH02	06-may-1993		1.2	UGL	T		GO
		MW-014	CL10BP	N	1.25	UH02	06-may-1993		1.1	UGL	T		GO
		MW-016	CL10BP	N	1.25	UH02	06-may-1993		0.89	UGL	T		GO
		MW-018	CL10BP	N	1.25	UH02	06-may-1993		1	UGL	T		GO
		MW-10	CL10BP	N	1.25	UH02	06-may-1993		1.1	UGL	T		GO
ES	DWHA		ABHC	M	0	UH13	05-may-1993	LT	0.039	UGL			
			ACLDAN	M	0	UH13	05-may-1993	ND	0.075	UGL	R		
			AENSLF	M	0	UH13	05-may-1993	LT	0.023	UGL			
			AENSLF	S	0.5	UH13	05-may-1993		0.581	UGL	X		
			ALDRN	M	0	UH13	05-may-1993	LT	0.092	UGL			
			ALDRN	S	0.5	UH13	05-may-1993		0.533	UGL			
			BBHC	M	0	UH13	05-may-1993	LT	0.024	UGL			
			BENSLF	M	0	UH13	05-may-1993	LT	0.023	UGL			
			BENSLF	S	0.5	UH13	05-may-1993		0.637	UGL	X		
			CL10BP	S	1.25	UH13	05-may-1993		1.3	UGL	T		

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			CL10BP	S	1.25	UH13	05-may-1993		1.6	UGL	T		
			CL4XYL	S	1.25	UH13	05-may-1993		1.04	UGL	T		
			CL4XYL	S	1.25	UH13	05-may-1993		1.29	UGL	T		
			DBHC	M	0	UH13	05-may-1993	LT	0.029	UGL			
			DLDRN	M	0	UH13	05-may-1993	LT	0.024	UGL			
			DLDRN	S	0.5	UH13	05-may-1993		0.606	UGL	X		
			ENDRN	M	0	UH13	05-may-1993	LT	0.024	UGL			
			ENDRN	S	0.5	UH13	05-may-1993		0.663	UGL	X		
			ENDRNA	M	0	UH13	05-may-1993	LT	0.029	UGL			
			ENDRNK	M	0	UH13	05-may-1993	ND	0.029	UGL	R		
			ESFSO4	M	0	UH13	05-may-1993	LT	0.079	UGL			
			GCLDAN	M	0	UH13	05-may-1993	ND	0.075	UGL	R		
			HPCL	M	0	UH13	05-may-1993	LT	0.042	UGL			
			HPCL	S	0.5	UH13	05-may-1993		0.554	UGL			
			HPCLE	M	0	UH13	05-may-1993	LT	0.025	UGL			
			ISODR	M	0	UH13	05-may-1993	LT	0.056	UGL			
			ISODR	S	1	UH13	05-may-1993		1.02	UGL			
			LIN	M	0	UH13	05-may-1993	LT	0.051	UGL			
			LIN	S	0.5	UH13	05-may-1993		0.411	UGL			
			MEXCLR	M	0	UH13	05-may-1993	LT	0.057	UGL			
			MEXCLR	S	1	UH13	05-may-1993		1.26	UGL	X		
			PPDDD	M	0	UH13	05-may-1993	LT	0.023	UGL			
			PPDDE	M	0	UH13	05-may-1993	LT	0.027	UGL			
			PPDDT	M	0	UH13	05-may-1993	LT	0.034	UGL			
			PPDDT	S	0.5	UH13	05-may-1993		0.537	UGL			
			TXPHEN	M	0	UH13	05-may-1993	LT	1.35	UGL			
		RBLK-1	ABHC	R	0	UH13	05-may-1993	LT	0.039	UGL			GO
		RBLK-1	ACLDAN	R	0	UH13	05-may-1993	ND	0.075	UGL	R		GO
		RBLK-1	AENSLF	R	0	UH13	05-may-1993	LT	0.023	UGL			GO
		RBLK-1	ALDRN	R	0	UH13	05-may-1993	LT	0.092	UGL			GO
ES	DWHA	RBLK-1	BBHC	R	0	UH13	05-may-1993	LT	0.024	UGL			GO
		RBLK-1	BENSLF	R	0	UH13	05-may-1993	LT	0.023	UGL			GO
		RBLK-1	CL10BP	N	1.25	UH13	05-may-1993		2	UGL	T		GO
		RBLK-1	CL4XYL	N	1.25	UH13	05-may-1993		1.27	UGL	T		GO
		RBLK-1	DBHC	R	0	UH13	05-may-1993	LT	0.029	UGL			GO
		RBLK-1	DLDRN	R	0	UH13	05-may-1993	LT	0.024	UGL			GO
		RBLK-1	ENDRN	R	0	UH13	05-may-1993	LT	0.024	UGL			GO
		RBLK-1	ENDRNA	R	0	UH13	05-may-1993	LT	0.029	UGL			GO
		RBLK-1	ENDRNK	R	0	UH13	05-may-1993	ND	0.029	UGL	R		GO
		RBLK-1	ESFSO4	R	0	UH13	05-may-1993	LT	0.079	UGL			GO
		RBLK-1	GCLDAN	R	0	UH13	05-may-1993	ND	0.075	UGL	R		GO
		RBLK-1	HPCL	R	0	UH13	05-may-1993	LT	0.042	UGL			GO
		RBLK-1	HPCLE	R	0	UH13	05-may-1993	LT	0.025	UGL			GO
		RBLK-1	ISODR	R	0	UH13	05-may-1993	LT	0.056	UGL			GO
		RBLK-1	LIN	R	0	UH13	05-may-1993	LT	0.051	UGL			GO
		RBLK-1	MEXCLR	R	0	UH13	05-may-1993	LT	0.057	UGL			GO
		RBLK-1	PPDDD	R	0	UH13	05-may-1993	LT	0.023	UGL			GO
		RBLK-1	PPDDE	R	0	UH13	05-may-1993	LT	0.027	UGL			GO
		RBLK-1	PPDDT	R	0	UH13	05-may-1993	LT	0.034	UGL			GO
		RBLK-1	TXPHEN	R	0	UH13	05-may-1993	LT	1.35	UGL			
ES	DWIA		ABHC	M	0	UH13	13-may-1993	LT	0.039	UGL			
			ACLDAN	M	0	UH13	13-may-1993	ND	0.075	UGL	R		
			AENSLF	M	0	UH13	13-may-1993	LT	0.023	UGL			
			AENSLF	S	0.5	UH13	13-may-1993		0.428	UGL			
			ALDRN	M	0	UH13	13-may-1993	LT	0.092	UGL			
			ALDRN	S	0.5	UH13	13-may-1993		0.38	UGL			
			BBHC	M	0	UH13	13-may-1993	LT	0.024	UGL			
			BENSLF	M	0	UH13	13-may-1993	LT	0.023	UGL			
			BENSLF	S	0.5	UH13	13-may-1993		0.487	UGL			
			CL10BP	S	1.25	UH13	13-may-1993		1.2	UGL	T		
			CL10BP	S	1.25	UH13	13-may-1993		1.4	UGL	T		
			CL4XYL	S	1.25	UH13	13-may-1993		0.946	UGL	T		
			CL4XYL	S	1.25	UH13	13-may-1993		0.983	UGL	T		
			DBHC	M	0	UH13	13-may-1993	LT	0.029	UGL			
			DLDRN	M	0	UH13	13-may-1993	LT	0.024	UGL			
			DLDRN	S	0.5	UH13	13-may-1993		0.461	UGL			
			ENDRN	M	0	UH13	13-may-1993	LT	0.024	UGL			
			ENDRN	S	0.5	UH13	13-may-1993		0.454	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			ENDRNA	M	0	UH13	13-may-1993	LT	0.029	UGL			
			ENDRNK	M	0	UH13	13-may-1993	ND	0.029	UGL	R		
			ESFSO4	M	0	UH13	13-may-1993	LT	0.079	UGL			
			GCLDAN	M	0	UH13	13-may-1993	ND	0.075	UGL	R		
			HPCL	M	0	UH13	13-may-1993	LT	0.042	UGL			
			HPCL	S	0.5	UH13	13-may-1993		0.394	UGL			
			HPCLE	M	0	UH13	13-may-1993	LT	0.025	UGL			
			ISODR	M	0	UH13	13-may-1993	LT	0.056	UGL			
			ISODR	S	1	UH13	13-may-1993		0.736	UGL			
			LIN	M	0	UH13	13-may-1993	LT	0.051	UGL			
			LIN	S	0.5	UH13	13-may-1993		0.279	UGL			
			MEXCLR	M	0	UH13	13-may-1993	LT	0.057	UGL			
ES	DWIA		MEXCLR	S	1	UH13	13-may-1993		1.02	UGL			
			PPDDD	M	0	UH13	13-may-1993	LT	0.023	UGL			
			PPDDE	M	0	UH13	13-may-1993	LT	0.027	UGL			
			PPDDT	M	0	UH13	13-may-1993	LT	0.034	UGL			
			PPDDT	S	0.5	UH13	13-may-1993		0.393	UGL			
			TXPHEN	M	0	UH13	13-may-1993	LT	1.35	UGL			
		MW-001	CL10BP	N	1.25	UH13	13-may-1993		0.92	UGL	T		GO
		MW-001	CL4XYL	N	1.25	UH13	13-may-1993		0.856	UGL	T		GO
		MW-002	CL10BP	N	1.25	UH13	13-may-1993		0.99	UGL	T		GO
		MW-002	CL4XYL	N	1.25	UH13	13-may-1993		0.99	UGL	T		GO
		MW-004	CL10BP	N	1.25	UH13	13-may-1993		0.91	UGL	T		GO
		MW-004	CL4XYL	N	1.25	UH13	13-may-1993		0.872	UGL	T		GO
		MW-014	CL10BP	N	1.25	UH13	13-may-1993		1.2	UGL	T		GO
		MW-014	CL4XYL	N	1.25	UH13	13-may-1993		1.06	UGL	T		GO
		MW-016	CL10BP	N	1.25	UH13	13-may-1993		1.4	UGL	T		GO
		MW-016	CL4XYL	N	1.25	UH13	13-may-1993		1.02	UGL	T		GO
		MW-018	CL10BP	N	1.25	UH13	13-may-1993		1.1	UGL	T		GO
		MW-018	CL4XYL	N	1.25	UH13	13-may-1993		0.952	UGL	T		GO
		MW-10	CL10BP	N	1.25	UH13	13-may-1993		1.6	UGL	T		GO
		MW-10	CL4XYL	N	1.25	UH13	13-may-1993		1.12	UGL	T		GO
ES	DYIA		111TCE	M	0	UM20	03-may-1993	LT	0.5	UGL			
			112TCE	M	0	UM20	03-may-1993	LT	1.2	UGL			
			11DCE	M	0	UM20	03-may-1993	LT	0.5	UGL			
			11DCLE	M	0	UM20	03-may-1993	LT	0.68	UGL			
			12DCD4	S	50	UM20	03-may-1993		48	UGL			
			12DCE	M	0	UM20	03-may-1993	LT	0.5	UGL			
			12DCLE	M	0	UM20	03-may-1993	LT	0.5	UGL			
			12DCLP	M	0	UM20	03-may-1993	LT	0.5	UGL			
			2CLEVE	M	0	UM20	03-may-1993	LT	0.71	UGL			
			4BFB	S	50	UM20	03-may-1993		50	UGL			
			ACET	M	0	UM20	03-may-1993	LT	13	UGL			
			ACROLN	M	0	UM20	03-may-1993	ND	100	UGL	R		
			ACRYLO	M	0	UM20	03-may-1993	ND	100	UGL	R		
			BRDCLM	M	0	UM20	03-may-1993	LT	0.59	UGL			
			C13DCP	M	0	UM20	03-may-1993	LT	0.58	UGL			
			C2AVE	M	0	UM20	03-may-1993	LT	8.3	UGL			
			C2H3CL	M	0	UM20	03-may-1993	LT	2.6	UGL			
			C2H5CL	M	0	UM20	03-may-1993	LT	1.9	UGL			
			C6H6	M	0	UM20	03-may-1993	LT	0.5	UGL			
			CCL3F	M	0	UM20	03-may-1993	LT	1.4	UGL			
			CCL4	M	0	UM20	03-may-1993	LT	0.58	UGL			
			CH2CL2	M	0	UM20	03-may-1993	LT	2.3	UGL			
			CH3BR	M	0	UM20	03-may-1993	LT	5.8	UGL			
			CH3CL	M	0	UM20	03-may-1993	LT	3.2	UGL			
			CHBR3	M	0	UM20	03-may-1993	LT	2.6	UGL			
			CHCL3	M	0	UM20	03-may-1993	LT	0.5	UGL			
			CL2BZ	M	0	UM20	03-may-1993	ND	10	UGL	R		
			CLC6H5	M	0	UM20	03-may-1993	LT	0.5	UGL			
			CS2	M	0	UM20	03-may-1993	LT	0.5	UGL			
			DBRCLM	M	0	UM20	03-may-1993	LT	0.67	UGL			
ES	DYIA		ETC6H5	M	0	UM20	03-may-1993	LT	0.5	UGL			
			MEC6D8	S	50	UM20	03-may-1993		49	UGL			
			MEC6H5	M	0	UM20	03-may-1993	LT	0.5	UGL			
			MEK	M	0	UM20	03-may-1993	LT	6.4	UGL			
			MIBK	M	0	UM20	03-may-1993	LT	3	UGL			
			MNBK	M	0	UM20	03-may-1993	LT	3.6	UGL			

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
			STYR	M	0	UM20	03-may-1993	LT	0.5	UGL			
			T13DCP	M	0	UM20	03-may-1993	LT	0.7	UGL			
			TCLEA	M	0	UM20	03-may-1993	LT	0.51	UGL			
			TCLEE	M	0	UM20	03-may-1993	LT	1.6	UGL			
			TRCLE	M	0	UM20	03-may-1993	LT	0.5	UGL			
			XYLEN	M	0	UM20	03-may-1993	LT	0.84	UGL			
		MW-001	12DCD4	N	50	UM20	03-may-1993		54	UGL			GO
		MW-001	4BFB	N	50	UM20	03-may-1993		45	UGL			GO
		MW-001	MEC6D8	N	50	UM20	03-may-1993		46	UGL			GO
		MW-002	12DCD4	N	50	UM20	03-may-1993		54	UGL			GO
		MW-002	4BFB	N	50	UM20	03-may-1993		45	UGL			GO
		MW-002	MEC6D8	N	50	UM20	03-may-1993		47	UGL			GO
		MW-004	12DCD4	N	50	UM20	03-may-1993		56	UGL			GO
		MW-004	4BFB	N	50	UM20	03-may-1993		46	UGL			GO
		MW-004	MEC6D8	N	50	UM20	03-may-1993		47	UGL			GO
		MW-014	12DCD4	N	50	UM20	03-may-1993		54	UGL			GO
		MW-014	4BFB	N	50	UM20	03-may-1993		44	UGL			GO
		MW-014	MEC6D8	N	50	UM20	03-may-1993		45	UGL			GO
		MW-016	12DCD4	N	50	UM20	03-may-1993		57	UGL			GO
		MW-016	4BFB	N	50	UM20	03-may-1993		45	UGL			GO
		MW-016	MEC6D8	N	50	UM20	03-may-1993		47	UGL			GO
		MW-018	12DCD4	N	50	UM20	03-may-1993		57	UGL			GO
		MW-018	4BFB	N	50	UM20	03-may-1993		45	UGL			GO
		MW-018	MEC6D8	N	50	UM20	03-may-1993		47	UGL			GO
		MW-10	12DCD4	N	50	UM20	03-may-1993		54	UGL			GO
		MW-10	4BFB	N	50	UM20	03-may-1993		44	UGL			GO
		MW-10	MEC6D8	N	50	UM20	03-may-1993		44	UGL			GO
		RBLK-1	111TCE	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	112TCE	R	0	UM20	03-may-1993	LT	1.2	UGL			GO
		RBLK-1	11DCE	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	11DCLE	R	0	UM20	03-may-1993	LT	0.68	UGL			GO
		RBLK-1	12DCD4	N	50	UM20	03-may-1993		56	UGL			GO
		RBLK-1	12DCE	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	12DCLE	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	12DCLP	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	2CLEVE	R	0	UM20	03-may-1993	LT	0.71	UGL			GO
		RBLK-1	4BFB	N	50	UM20	03-may-1993		43	UGL			GO
		RBLK-1	ACET	R	0	UM20	03-may-1993	LT	13	UGL			GO
		RBLK-1	ACROLN	R	0	UM20	03-may-1993	ND	100	UGL	R		GO
		RBLK-1	ACRYLO	R	0	UM20	03-may-1993	ND	100	UGL	R		GO
		RBLK-1	BRDCLM	R	0	UM20	03-may-1993	LT	0.59	UGL			GO
		RBLK-1	C13DCP	R	0	UM20	03-may-1993	LT	0.58	UGL			GO
		RBLK-1	C2AVE	R	0	UM20	03-may-1993	LT	8.3	UGL			GO
		RBLK-1	C2H3CL	R	0	UM20	03-may-1993	LT	2.6	UGL			GO
		RBLK-1	C2H5CL	R	0	UM20	03-may-1993	LT	1.9	UGL			GO
ES	DYIA	RBLK-1	C6H6	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	CCL3F	R	0	UM20	03-may-1993	LT	1.4	UGL			GO
		RBLK-1	CCL4	R	0	UM20	03-may-1993	LT	0.58	UGL			GO
		RBLK-1	CH2CL2	R	0	UM20	03-may-1993	LT	2.3	UGL			GO
		RBLK-1	CH3BR	R	0	UM20	03-may-1993	LT	5.8	UGL			GO
		RBLK-1	CH3CL	R	0	UM20	03-may-1993	LT	3.2	UGL			GO
		RBLK-1	CHBR3	R	0	UM20	03-may-1993	LT	2.6	UGL			GO
		RBLK-1	CHCL3	R	0	UM20	03-may-1993		3.9	UGL			GO
		RBLK-1	CL2BZ	R	0	UM20	03-may-1993	ND	10	UGL	R		GO
		RBLK-1	CLC6H5	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	CS2	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	DBRCLM	R	0	UM20	03-may-1993	LT	0.67	UGL			GO
		RBLK-1	ETC6H5	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	MEC6D8	N	50	UM20	03-may-1993		44	UGL			GO
		RBLK-1	MEC6H5	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	MEK	R	0	UM20	03-may-1993	LT	6.4	UGL			GO
		RBLK-1	MIBK	R	0	UM20	03-may-1993	LT	3	UGL			GO
		RBLK-1	MNBK	R	0	UM20	03-may-1993	LT	3.6	UGL			GO
		RBLK-1	STYR	R	0	UM20	03-may-1993	LT	0.5	UGL			GO
		RBLK-1	T13DCP	R	0	UM20	03-may-1993	LT	0.7	UGL			GO
		RBLK-1	TCLEA	R	0	UM20	03-may-1993	LT	0.51	UGL			GO
		RBLK-1	TCLEE	R	0	UM20	03-may-1993	LT	1.6	UGL			GO
		RBLK-1	TRCLE	R	0	UM20	03-may-1993	LT	0.5	UGL			GO

Chemical Quality Control Report
Installation: Detroit Arsenal, MI (DA)
Analysis Date Range: 01-dec-92 to 11-jun-93

Lab	Lot	F Samp No	Test Name	Method Type	--- Q C --- Spike	Code	Analysis Date	Meas. Bool	Value	Unit Meas	Flags	Data Qualifiers	Prog
		RBLK-1	XYLEN	R	0	UM20	03-may-1993	LT	0.84	UGL			GO
		TBLK-1	111TCE	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	112TCE	T	0	UM20	03-may-1993	LT	1.2	UGL			GO
		TBLK-1	11DCE	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	11DCLE	T	0	UM20	03-may-1993	LT	0.68	UGL			GO
		TBLK-1	12DCD4	N	50	UM20	03-may-1993		54	UGL			GO
		TBLK-1	12DCE	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	12DCLE	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	12DCLP	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	2CLEVE	T	0	UM20	03-may-1993	LT	0.71	UGL			GO
		TBLK-1	4BFB	N	50	UM20	03-may-1993		45	UGL			GO
		TBLK-1	ACET	T	0	UM20	03-may-1993	LT	13	UGL			GO
		TBLK-1	ACROLN	T	0	UM20	03-may-1993	ND	100	UGL	R		GO
		TBLK-1	ACRYLO	T	0	UM20	03-may-1993	ND	100	UGL	R		GO
		TBLK-1	BRDCLM	T	0	UM20	03-may-1993	LT	0.59	UGL			GO
		TBLK-1	C13DCP	T	0	UM20	03-may-1993	LT	0.58	UGL			GO
		TBLK-1	C2AVE	T	0	UM20	03-may-1993	LT	8.3	UGL			GO
		TBLK-1	C2H3CL	T	0	UM20	03-may-1993	LT	2.6	UGL			GO
		TBLK-1	C2H5CL	T	0	UM20	03-may-1993	LT	1.9	UGL			GO
		TBLK-1	C6H6	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	CCL3F	T	0	UM20	03-may-1993	LT	1.4	UGL			GO
		TBLK-1	CCL4	T	0	UM20	03-may-1993	LT	0.58	UGL			GO
		TBLK-1	CH2CL2	T	0	UM20	03-may-1993	LT	2.3	UGL			GO
		TBLK-1	CH3BR	T	0	UM20	03-may-1993	LT	5.8	UGL			GO
		TBLK-1	CH3CL	T	0	UM20	03-may-1993	LT	3.2	UGL			GO
		TBLK-1	CHBR3	T	0	UM20	03-may-1993	LT	2.6	UGL			GO
		TBLK-1	CHCL3	T	0	UM20	03-may-1993		4.2	UGL			GO
		TBLK-1	CL2BZ	T	0	UM20	03-may-1993	ND	10	UGL	R		GO
ES	DYIA	TBLK-1	CLC6H5	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	CS2	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	DBRCLM	T	0	UM20	03-may-1993	LT	0.67	UGL			GO
		TBLK-1	ETC6H5	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	MEC6D8	N	50	UM20	03-may-1993		47	UGL			GO
		TBLK-1	MEC6H5	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	MEK	T	0	UM20	03-may-1993	LT	6.4	UGL			GO
		TBLK-1	MIBK	T	0	UM20	03-may-1993	LT	3	UGL			GO
		TBLK-1	MNBK	T	0	UM20	03-may-1993	LT	3.6	UGL			GO
		TBLK-1	STYR	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	T13DCP	T	0	UM20	03-may-1993	LT	0.7	UGL			GO
		TBLK-1	TCLEA	T	0	UM20	03-may-1993	LT	0.51	UGL			GO
		TBLK-1	TCLEE	T	0	UM20	03-may-1993	LT	1.6	UGL			GO
		TBLK-1	TRCLE	T	0	UM20	03-may-1993	LT	0.5	UGL			GO
		TBLK-1	XYLEN	T	0	UM20	03-may-1993	LT	0.84	UGL			GO
ES	EFBA		SE	M	0	SD21	07-may-1993	LT	3.02	UGL			
			SE	S	5	SD21	07-may-1993		4.8	UGL			
			SE	S	75	SD21	07-may-1993		77.5	UGL			
			SE	S	75	SD21	07-may-1993		78.4	UGL			
		MW-018	SE	N	37.5	SD21	07-may-1993		34.8	UGL			GO
		MW-018	SE	N	37.5	SD21	07-may-1993		35.5	UGL			GO
		RBLK-1	SE	R	0	SD21	07-may-1993	LT	3.02	UGL			GO
ES	EOFA		OILGR	M	0	00	18-may-1993	LT	168	UGL			
			OILGR	S	4200	00	18-may-1993		4020	UGL			
			OILGR	S	4200	00	18-may-1993		4150	UGL			
			TPHC	M	0	00	18-may-1993	LT	168	UGL			
			TPHC	S	4200	00	18-may-1993		3660	UGL			
			TPHC	S	4200	00	18-may-1993		4020	UGL			
		RBLK-1	OILGR	N	4200	00	18-may-1993		3990	UGL			GO
		RBLK-1	OILGR	R	0	00	18-may-1993	LT	168	UGL			GO
		RBLK-1	TPHC	N	4200	00	18-may-1993		3890	UGL			GO
		RBLK-1	TPHC	R	0	00	18-may-1993	LT	168	UGL			GO

APPENDIX H

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER – MW001
DETROIT ARSENAL

		9/84	7/88	9/88	9/88	1/90	5/90	7/90	1/93	4/93
Volatile Organic Compounds										
CH3CL	Chloromethane	–	NA	NA	NA	NA	5.25	–	–	–
Base–Neutral/Acid Extractables										
B2EHP	Bis(2–ethylhexyl)phthalate	–	NA	NA	NA	NA	6.91	–	6.4	–
Metals										
AS	Arsenic	–	NA	NA	–	NA	–	–	3.2	–
BA	Barium	–	NA	NA	NA	NA	NA	NA	128	94.4
CA	Calcium	NA	NA	NA	NA	NA	NA	NA	341,000	278,000
FE	Iron	NA	35	–	–	6,700	NA	NA	2,580	1,170
PB	Lead	–	–	–	–	1.74	2.39	2.49	–	–
K	Potassium	NA	NA	NA	NA	NA	NA	NA	3,200	*
MG	Magnesium	NA	NA	NA	NA	NA	NA	NA	127,000	105,000
MN	Manganese	100	252	100	197	1,240	1,010	658	1,300	917
NA	Sodium	NA	NA	NA	NA	NA	NA	NA	126,000 G	83,900 G
V	Vanadium	NA	NA	NA	NA	NA	NA	NA	18.8	–
ZN	Zinc	–	NA	NA	NA	NA	–	–	98.6	–
Water Quality Parameters										
CL	Chloride	NA	NA	NA	NA	NA	NA	NA	300,000	260,000
SO4	Sulfate	143,000	210,000	110,000	140,000	330,000	267,000	212,000	400,000	300,000
NIT	Nitrogen, (NO2 + NO3)	–	NA	NA	NA	NA	11	21	33.6	21.3
OILGR	Oil and Grease	–	NA	NA	NA	NA	–	–	–	–
Tentatively Identified Compounds										
2CHEIL	2–Cyclohexen–ol	NA	NA	NA	NA	NA	1	NA	NA	NA
CAPLCT	Caprofactam	NA	NA	NA	NA	NA	2	40	NA	NA
UNK536	Unknown 536	NA	NA	NA	NA	NA	6	NA	NA	NA

Notes:
1. Units are expressed in micrograms per liter ($\mu g/L$).
2. G – Compound was found in the associated rinsate blank but this value is above the action level.
3. A dash (–) indicates the analyte was analyzed for but not detected.
4. * – The value is below the blank action level and is considered undetected.
5. NA – Not analyzed.

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER – MW002
DETROIT ARSENAL

		9/84	7/88	9/88	9/88	1/90	5/90	7/90	1/93	4/93
Volatile Organic Compounds										
C6H6	Benzene	–	NA	NA	NA	NA	0.66	–	–	–
12DCE	1,2–Dichloroethene	80	7.5	5.5	5.5	38.9	66	–	7.0	0.86
TRCLE	Trichloroethene	20	16	33	28	4.48	8.57	6.29	1.7	–
C2H3CL	Vinyl Chloride	–	NA	NA	NA	NA	40.5	10.1	–	–
Base–Neutral/Acid Extractables										
		–	–	–	–	–	–	–	–	–
Metals										
BA	Barium	–	NA	NA	NA	NA	NA	NA	48.1	43.1
CA	Calcium	NA	NA	NA	NA	NA	NA	NA	241,000	185,000
FE	Iron	NA	NA	NA	NA	NA	NA	NA	–	111
PB	Lead	NA	NA	NA	NA	NA	1.74	2.28	–	–
K	Potassium	NA	NA	NA	NA	NA	NA	NA	9,650	9,770 G
MG	Magnesium	NA	NA	NA	NA	NA	NA	NA	70,200	50,500
MN	Manganese	100	NA	NA	NA	NA	76.2	–	104	19.5
AG	Silver	2	NA	NA	NA	NA	–	–	–	–
NA	Sodium	NA	NA	NA	NA	NA	NA	NA	55,300 G	37,900 G
V	Vanadium	NA	NA	NA	NA	NA	NA	NA	14.3	–
ZN	Zinc	–	NA	NA	NA	NA	–	–	–	–
Water Quality Parameters										
CL	Chloride	NA	NA	NA	NA	NA	NA	NA	60,000	36,000
SO4	Sulfate	204,000	NA	NA	NA	NA	400,000	340,000	350,000	226,000
NIT	Nitrogen, (NO2 + NO3)	–	NA	NA	NA	NA	–	14	24.8	75.8
OILGR	Oil and Grease	10,000	4,900	7,000	6,800	186	–	–	355	–
TOC	Total Organic Carbon	NA	NA	12,000	8,000	NA	NA	NA	NA	NA
Tentatively Identified Compounds										
CAPLCT	Caprofactam	NA	NA	NA	NA	NA	4	70	NA	NA
C12DCE	Cis–1,2–Dichloroethene	NA	NA	NA	NA	NA	NA	40	NA	NA
12TCE	1,1,2–Trichloroethane	NA	NA	NA	NA	NA	1	NA	NA	NA
UNK516	Unknown 516	NA	NA	NA	NA	NA	3	NA	NA	NA
UNK575	Unknown 575	NA	NA	NA	NA	NA	1	NA	NA	NA

Notes:
1. Units are expressed in micrograms per liter ($\mu g/L$).
2. G – Compound was found in the associated rinsate blank but this value is above the action level.
3. A dash (–) indicates the analyte was analyzed for but not detected.
4. * – The value is below the blank action level and is considered undetected.
5. NA – Not analyzed.

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER – MW004
DETROIT ARSENAL

		9/84	7/88	9/88	9/88	1/90	5/90	7/90	1/93	4/93
Volatile Organic Compounds										
		–	–	–	–	–	–	–	–	–
Base–Neutral/Acid Extractables										
		–	–	–	–	–	–	–	–	–
Metals										
BA	Barium	–	NA	NA	NA	NA	NA	NA	44.3	31.1
CD	Cadmium	4.4	NA	NA	NA	NA	–	–	–	–
CA	Calcium	NA	NA	NA	NA	NA	NA	NA	232,000	218,000
CU	Copper	10	NA	NA	NA	NA	–	–	–	–
FE	Iron	NA	53.9	–	–	–	NA	NA	138	43.8
PB	Lead	–	–	–	–	5.64	–	–	–	–
K	Potassium	NA	NA	NA	NA	NA	NA	NA	747	*
MG	Magnesium	NA	NA	NA	NA	NA	NA	NA	55,400	58,300
MN	Manganese	300	107	4.03	58.7	84.4	15.3	–	8.97	3.19
HG	Mercury	–	NA	NA	NA	NA	–	0.284	–	–
AG	Silver	2	NA	NA	NA	NA	–	–	–	–
NA	Sodium	NA	NA	NA	NA	NA	NA	NA	129,000 G	114,000 G
V	Vanadium	NA	NA	NA	NA	NA	NA	NA	11.8	–
ZN	Zinc	–	–	–	–	–	–	–	90.4	–
Water Quality Parameters										
CL	Chloride	NA	NA	NA	NA	NA	NA	NA	80,000	99,000
SO4	Sulfate	NA	370,000	–	310,000	460,000	540,000	530,000	400,000	340,000
NIT	Nitrogen, (NO2 + NO3)	–	NA	NA	NA	NA	14.1	20.8	36.2	33
OILGR	Oil and Grease	19000	NA	–	–	309	373	196	297	–
TOC	Total Organic Carbon	NA	–	–	2400	NA	NA	NA	NA	NA
Tentatively Identified Compounds										
2CHE1L	2–Cyclohexen–ol	NA	NA	NA	NA	NA	1	NA	NA	NA
CAPLCT	Caprofactam	NA	NA	NA	NA	NA	NA	20	NA	NA

Notes:
1. Units are expressed in micrograms per liter ($\mu g/L$).
2. G – Compound was found in the associated rinsate blank but this value is above the action level.
3. A dash (–) indicates the analyte was analyzed for but not detected.
4. * – The value is below the blank action level and is considered undetected.
5. NA – Not analyzed.

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER – MW010
DETROIT ARSENAL

		9/84	7/88	9/88	9/88	1/90	5/90	7/90	1/93	4/93
Volatile Organic Compounds										
12DCE	1,2–Dichloroethane (total)	–	–	–	–	1.13	–	–	1.2	0.78
TRCLE	Trichloroethene	–	–	–	–	–	–	–	0.62	0.70
Base–Neutral/Acid Extractables										
B2EHP	Bis(2–ethylhexyl)phthalate	–	NA	NA	NA	NA	5.45	–	–	–
Metals										
BA	Barium	–	NA	NA	NA	NA	NA	NA	62.5	53.7
CD	Cadmium	6.8	NA	NA	NA	NA	NA	–	–	–
CA	Calcium	NA	NA	NA	NA	NA	NA	NA	189,000	145,000
CR	Chromium	20	NA	NA	NA	NA	NA	–	–	–
CU	Copper	6	NA	NA	NA	NA	NA	–	–	–
PB	Lead	NA	NA	NA	NA	NA	3.8	3.69	–	–
K	Potassium	NA	NA	NA	NA	NA	NA	NA	2,840	*
MG	Magnesium	NA	NA	NA	NA	NA	NA	NA	60,200	44,400
MN	Manganese	300	NA	NA	NA	NA	4.28	30.2	4.98	–
AG	Silver	4	NA	NA	NA	NA	NA	–	–	–
NA	Sodium	NA	NA	NA	NA	NA	NA	NA	282,000 G	193,000 G
ZN	Zinc	–	NA	NA	NA	NA	NA	–	100	–
Water Quality Parameters										
CL	Chloride	NA	NA	NA	NA	NA	NA	NA	520,000	310,000
SO4	Sulfate	NA	NA	NA	NA	NA	251,000	237,000	145,000	104,000
NIT	Nitrogen, (NO2 + NO3)	–	NA	NA	NA	NA	32.8	23.3	42.3	55.4
OILGR	Oil and Grease	14,000	7,100	–	–	186	700	1,820	359	–
TOC	Total Organic Carbon	NA	ND	9,200	9,600	NA	NA	NA	NA	NA
Tentatively Identified Compounds										
CAPLCT	Caprofactam	NA	NA	NA	NA	NA	NA	40	NA	NA
UNK516	Unknown 516	NA	NA	NA	NA	NA	2	NA	NA	NA

Notes:
1. Units are expressed in micrograms per liter ($\mu g/L$).
2. G – Compound was found in the associated rinsate blank but this value is above the action level.
3. A dash (–) indicates the analyte was analyzed for but not detected.
4. * – The value is below the blank action level and is considered undetected.
5. NA – Not analyzed.

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER – MW014
DETROIT ARSENAL

		9/84	7/88	9/88	1/90	5/90	7/90	1/93	4/93
Volatile Organic Compounds									
CH2CL2	Methylene Chloride	7.0	NA	NA	NA	NA	NA	6.1	–
MEC6H5	Toluene	6.0	NA	NA	NA	NA	NA	–	–
Base–Neutral/Acid Extractables									
B2EHP	Bis(2–ethylhexyl)phthalate	–	NA	NA	NA	NA	NA	6.2	–
Metals									
SB	Antimony	NA	NA	NA	NA	NA	NA	–	53.1
BA	Barium	–	NA	NA	NA	NA	NA	162	133
CD	Cadmium	9.7	NA	NA	NA	NA	NA	–	–
CA	Calcium	NA	NA	NA	NA	NA	NA	229,000	211,000
FE	Iron	NA	NA	NA	NA	NA	NA	–	46.3
PB	Lead	26.6	NA	NA	NA	NA	NA	–	–
K	Potassium	NA	NA	NA	NA	NA	NA	3,460	–
MG	Magnesium	NA	NA	NA	NA	NA	NA	152,000	138,000
MN	Manganese	400	NA	NA	NA	NA	NA	14.0	3.96
AG	Silver	5	NA	NA	NA	NA	NA	–	–
NA	Sodium	NA	NA	NA	NA	NA	NA	309,000 G	312,000 G
V	Vanadium	NA	NA	NA	NA	NA	NA	15.2	12.3
ZN	Zinc	–	NA	NA	NA	NA	NA	26.3	–
Water Quality Parameters									
CL	Chloride	–	NA	NA	NA	NA	NA	1,000,000	1,000,000
SO4	Sulfate	77,800	NA	NA	NA	NA	NA	142,000	135,000
NIT	Nitrogen, (NO2 + NO3)	–	NA	NA	NA	NA	NA	46.7	19
OILGR	Oil and Grease	–	NA	NA	NA	NA	NA	–	–
Tentatively Identified Compounds									
UNK007	Unknown 007	30	NA	NA	NA	NA	NA	–	–

Notes:
1. Units are expressed in micrograms per liter ($\mu g/L$).
2. G – Compound was found in the associated rinsate blank but this value is above the action level.
3. A dash (–) indicates the analyte was analyzed for but not detected.
4. * – The value is below the blank action level and is considered undetected.
5. NA – Not analyzed.

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER – MW016
DETROIT ARSENAL

		9/84	7/88	9/88	1/90	5/90	7/90	1/93	4/93
Volatile Organic Compounds									
C6H6	Benzene	4.0	NA	NA	NA	1.09	–	0.97	–
11DCE	1,1–Dichloroethene	8.0	NA	NA	NA	2.45	1.23	1.5	–
11DCLE	1,1–Dichloroethane	100	372	370	140	173	153	130	69
12DCLP	1,2–Dichloropropane	20	18	21	6.19	10.8	9.8	8.5	4.2
111TCE	1,1,1–Trichloroethane	400	128	110	31	36.6	24.8	19	5.7
Base–Neutral/Acid Extractables									
		–	–	–	–	–	–	–	–
Metals									
BA	Barium	NA	NA	NA	NA	NA	NA	94.4	73.2
CD	Cadmium	14.5	NA	NA	NA	–	–	–	–
CA	Calcium	NA	NA	NA	NA	NA	NA	207,000	243,000
CR	Chromium	7	–	–	–	–	–	–	–
CU	Copper	6	NA	NA	NA	–	–	–	–
FE	Iron	NA	21.3	NA	NA	NA	NA	–	85.1
PB	Lead	NA	–	–	–	7.59	3.14	–	–
MG	Magnesium	NA	NA	NA	NA	NA	NA	53,300	64,000
MN	Manganese	500	3,120	2,000	1,270	1,120	326	1,750	1,710
NA	Sodium	NA	NA	NA	NA	NA	NA	413,000 G	436,000 G
ZN	Zinc	–	NA	NA	NA	–	–	34.2	–
Water Quality Parameters									
CL	Chloride	NA	NA	NA	NA	NA	NA	1,000,000	1,200,000
SO4	Sulfate	60,000	120,000	100,000	145,000	128,000	142,000	109,000	11,000
NIT	Nitrogen, (NO2 + NO3)	–	NA	NA	NA	31.6	32.8	19.3	–
OILGR	Oil and Grease	5,000	94,000	–	247	997	–	–	–
TOC	Total Organic Carbon	NA	ND	6,900	NA	NA	NA	NA	NA
Tentatively Identified Compounds									
CAPLCT	Caprofactam	NA	NA	NA	NA	6.0	40	NA	NA
2CHE1L	2–Cyclohexen–ol	NA	NA	NA	NA	1.0	NA	NA	NA
TCLTFE	1,1,2–Trichloro–1,2,2–Trifluoroethane	100	110	43	16	20	30	NA	20
UNK034	Unknown 034	NA	NA	NA	NA	NA	NA	20	NA
UNK516	Unknown 516	NA	NA	NA	NA	1	NA	NA	NA
UNK530	Unknown 530	NA	NA	NA	NA	NA	NA	10	NA
UNK536	Unknown 536	NA	NA	NA	NA	10	NA	NA	NA
UNK539	Unknown 539	NA	NA	NA	NA	NA	NA	NA	9
UNK547	Unknown 547	NA	NA	NA	NA	NA	5	NA	NA
UNK558	Unknown 558	NA	NA	NA	NA	NA	NA	50	NA
UNK561	Unknown 561	NA	NA	NA	NA	NA	NA	10	NA
UNK563	Unknown 563	NA	NA	NA	NA	2	NA	NA	NA
UNK564	Unknown 564	NA	NA	NA	NA	NA	4	NA	NA
UNK565	Unknown 565	NA	NA	NA	NA	NA	NA	NA	90
UNK567	Unknown 567	NA	NA	NA	NA	9	NA	NA	NA
UNK568	Unknown 568	NA	NA	NA	NA	NA	NA	NA	10
UNK597	Unknown 597	NA	NA	NA	NA	2	NA	NA	NA
UNK598	Unknown 598	NA	NA	NA	NA	3	NA	NA	NA

Notes:
1. Units are expressed in micrograms per liter ($\mu g/L$).
2. G – Compound was found in the associated rinsate blank but this value is above the action level.
3. A dash (–) indicates the analyte was analyzed for but not detected.
4. * – The value is below the blank action level and is considered undetected.
5. NA – Not analyzed.

SUMMARY OF ANALYTICAL RESULTS IN GROUNDWATER – MW018
DETROIT ARSENAL

		9/84	7/88	9/88	1/90	5/90	7/90	1/93	4/93
Volatile Organic Compounds									
CCL4	Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	0.64	–
Base–Neutral/Acid Extractables									
B2EHP	Bis(2–ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	7.9	–
Metals									
SB	Antimony	NA	NA	NA	NA	NA	NA	–	60.7
BA	Barium	–	NA	NA	NA	NA	NA	113	113
CA	Calcium	NA	NA	NA	NA	NA	NA	130,000	150,000
CR	Chromium III	10	NA	NA	NA	NA	NA	–	–
CRHEX	Chromium VI	10	NA	NA	NA	NA	NA	NA	NA
CU	Copper	7	NA	NA	NA	NA	NA	–	–
K	Potassium	NA	NA	NA	NA	NA	NA	5,240	6,320 G
MG	Magnesium	NA	NA	NA	NA	NA	NA	87,400	103,000
MN	Manganese	100	NA	NA	NA	NA	NA	3.16	–
AG	Silver	1	NA	NA	NA	NA	NA	–	–
NA	Sodium	NA	NA	NA	NA	NA	NA	115,000 G	127,000 G
V	Vanadium	NA	NA	NA	NA	NA	NA	12.9	13.5
ZN	Zinc	NA	NA	NA	NA	NA	NA	–	–
Water Quality Parameters									
CL	Chloride	–	NA	NA	NA	NA	NA	410,000	520,000
SO4	Sulfate	216,000	NA	NA	NA	NA	NA	172,000	183,000
NIT	Nitrogen, (NO2 + NO3)	1,240	NA	NA	NA	NA	NA	88	85.2
Tentatively Identified Compounds									
OMCTSX	Octamethylcyclotetrasilane	NA	NA	NA	NA	NA	NA	10	NA
UNK007	Unknown 007	10	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Units are expressed in micrograms per liter ($\mu g/L$).
2. G – Compound was found in the associated rinsate blank but this value is above the action level.
3. A dash (–) indicates the analyte was analyzed for but not detected.
4. * – The value is below the blank action level and is considered undetected.
5. NA – Not analyzed.